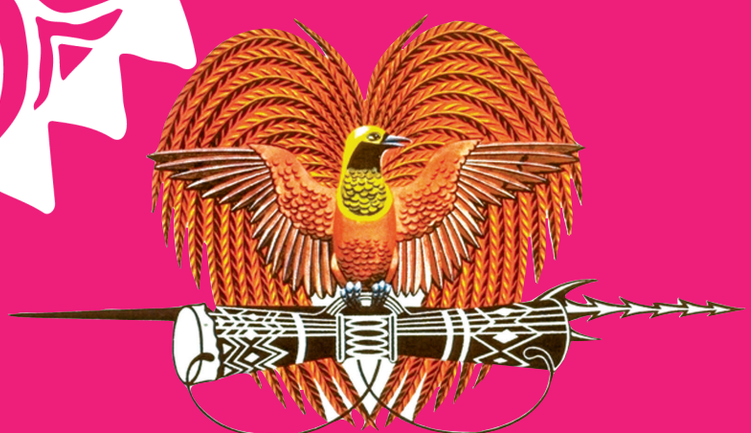
Making A Living

Teacher Guide

Grade 8

Standards Based



Papua New Guinea
Department of Education

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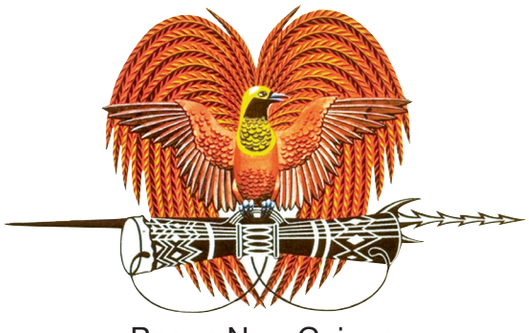

Papua New Guinea
Department of Education

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Secretary's Message

This Making a Living Teacher Guide for Grade 8 is written to complement the implementation of the Senior Primary syllabus in compliance to the governments directive for the revision of the curriculum to be based on standards Based Approach. The Standards based Approach to curriculum development and teaching focuses on defining the purpose and reasons for teaching and the content to be learnt in relation to the national standards set by the national educational systems or organizations. In this context, the content standards are outlined in the syllabus with the benchmarks and assessment tasks.

The Teacher guide draws out the subject matter of the Content Standards and Benchmarks and modeled through the guided lessons and other lessons from the text books. Hence, the teacher guide is viewed as a guiding document to complement what is provided in the syllabus and text books. It provides the necessary information and teaching strategies on how to achieve the content standard in the syllabus. Guided lesson plans, Assessment tasks and Assessment rubrics for the content standards are also outlined in the Teacher guide.

The 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 high school. 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 high school level.
Teachers are encouraged to read this teacher guide carefully to become familiar with the content so that they can be confident to use the new concepts and strategies as well as teach the content well. They can also adjust to suit the needs of the students.

I recommend and approve this Grade 8 Making a Living Teacher Guide to be used in all primary and junior high schools throughout Papua New Guinea.

……..

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

Introduction

The Grade 8 Making a Living Teacher Guide is developed as a support curriculum material for the Making a Living syllabus. The document draws out the subject matter of the content standards and benchmarks and modeled through the guided lessons and other lessons from the text books. It provides guidelines on how to plan and program teaching and learning for Making a Living with yearly, termly, and weekly programs.

How to use the Teacher Guide

You must use this teacher guide with the syllabus when planning Making a Living lessons. In your planning and preparations, consider the following:

- how the lessons will be delivered
- the time required to undertake different activities
- the materials and resources required for the lesson
- prepare learning activities that will motivate students to think critically to design create, produce and construct practical projects
- how to design creative and interactive teaching and learning environment
- when , where and how to use benchmarks in relation to attainment of standards
- creating assessment tasks and how to plan them to achieve identified content standards
- the necessary skills and attitudes to model, and
- how to assess what is taught.

Use this teacher guide to help you design your teaching programs, lesson and assessment plans. Therefore you need to;

- read this teacher guide and syllabus very carefully to understand the content and what you will require for your classroom teaching;
- be familiar with the syllabus strands, units, topics and lesson topics;
- read and understand the content standards and benchmarks;
- read and understand how the assessment plans and tasks are structured so that you can;;design appropriate assessment plans; and
- read and understand the structure and content of sample guided lessons.

The Making a Living teacher guide is organized according to Strands and Units. There are 3 Strands which are arranged into teaching units for the year as shown in this table.

Table of Strands and Units

Strand	Units
Crop & 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

Making a Living is given a total time of **160 minutes** per week- that is giving **2 x 40** minutes of theory lessons and **1 x 80 minutes** of practical projects.

This Teacher Guide presents to the teachers information on how to teach and the various options teachers should consider when planning for implementation of the Making a Living syllabus learning content in this grade. The teacher guide also includes recommended knowledge, skills, attitudes and values for each of the content standards as well as sample assessment tasks and how to record and report students achievements. You are encouraged to select and adapt the strategies and processes illustrated in the guide to meet the needs of your students.

Purpose

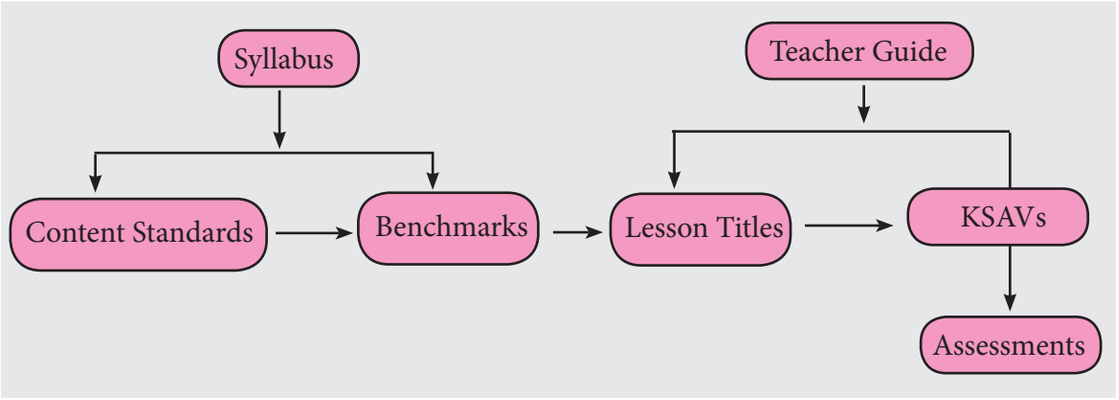
This Teacher Guide must be used in conjunction with the Grades 6, 7 & 8 Syllabus. The main purpose is to implement the syllabus in the classroom. The Teacher Guide provides you with guidelines and directions to help you plan and develop teaching and learning activities for the achievement of Content Standards and Benchmarks. It provides you with information and processes to:

- Understand and expand on the relevant knowledge, skills, attitudes and values (KSAVs) provided in this guide
- Develop teaching programs based on your school contexts
- Plan and develop daily lesson activities
- Plan and conduct assessments to monitor students' achievements.

Teachers are required to read carefully and use the guidelines in the Teacher Guide to plan and develop teaching and learning programs. The guide contains the following main components:

- Yearly and termly overview which consists of all strands, units, topics and lesson titles
- Sample weekly program or timetable
- Suggested daily plans which consists of guided lessons and KSAVs
- Assessment tasks and rubrics
- Support resources for use when planning and programming.

Links between the key components of the Syllabus and the Teacher Guide



Key features

The key features outlined in this section are identified as unique to Making a Living and important in the planning, development and implementation of whole school programs. The key features of the Grades 6 to 8 Making a Living curriculum, emphasizes recommended knowledge, skills and processes and provide ideas on how to teach Making a Living.

Nature of Making a Living

This Making a Living course is a revised version of the Making a Living presently used in schools. Most of the original strands have been replaced with the three new strands to cater for content which was watered down from the previous outcomes based curriculum and the content place under specific unit topics. The subject integrates relevant skills in Agriculture, Business and Technology that are essential for progressive learning from one level to the next. Students are engaged in practical activities linking their head, heart and hands (knowledge, skills and attitudes) that enable them to:

- work in creative, innovative and enterprising ways to produce their own products to meet their needs in a variety of contexts;
- work in a range of diverse learning environments;
- develop necessary skills and knowledge to generate an income;
- become active and productive members of the community;
- implement specific techniques and processes to enable them to manage their own lives;
- undertake practical and real life projects that focus on developing economic independence; and
- work towards improving their quality of life and be compatible within a world driven by technology.

Making a Living without a Practical Skills and Home Economics building

Making a Living processes and procedures can be taught and learned without a conventional home economics and practical skills building as well as agricultural and commercial setting in the school. Making a Living without a building is a reality for many Papua New Guinean schools. With this understanding, the Grades 6-8 Making a Living Syllabus together with the Teacher guides have been specifically designed to assist teachers in planning and designing worthwhile learning opportunities for all students irrespective of the school's context and availability of resources. Students and teachers are encouraged to use the resources that are readily available to them in their local context to interact with and create practical activities. Local context and community involvement become very important in this approach.

Links with other grades

Scope of Learning for Making a Living

Elementary	Junior Primary	Senior Primary	Junior High	Senior High
Culture and Community	• Social science • Health • Arts	• Making a Living	• Design & Technology • Business Studies • Agriculture • Arts	• Design & Technology • ICT • Computer Studies • Tourism • Business Studies • Applied Natural Resource Management

The content of Grade 6 Making a Living is a build up of what is covered in the elementary culture and community, junior primary social science and arts which comes under the culture and community learning area. Much content in these learning areas lacked emphasis in the Outcomes based curriculum and has created knowledge and skills gaps with missing links by grade and level. The content of Making a Living in Senior primary grades was reviewed, realigned and repositioned with three new strands, **crop and livestock farming, business environment** and **practices and basic technology** in the standards based curriculum. These new strands cater for these missing gaps and allow for progressive learning across all grade levels.

Business and technology course in high school draws heavily from these three new strands, **Crop and Livestock Farming, Business Environment** and **Practices** and **Basic technology**. These practical skills enable students to be prepared for further technical training in technical vocational schools and advance aspects of business and technology in tertiary institutions. It is very important to ensure learning is contextual so that the knowledge, understanding and skills acquired are meaningful and practical to students.

This important subject contains the basic fundamental concepts of business and technology and links to high school and further progresses to technical and vocational schools and tertiary institutions. These fundamental life skills form the basis of student's technical skills development which will equip students with essential life skills, knowledge and attitudes to become self-reliant and live entrepreneurial lives after leaving formal education now and in the future.

Subject Background

The realigned Making a Living curriculum comes under the Business and Technology learning pathway which focuses on vocational and technical skills development. The instructional programs developed in various kinds of practical activities aim to promote basic technical skills development and well-being of the individual.

Making a Living is taught in Grades 6 to 8 and the concepts of Making a Living is further taught in High school level. In the past Making a Living was considered as a non-core subject and less emphasis was given to teaching this very important subject. Making a Living subject in primary level fosters basic technical skills to equip and enable students to further venture into the advance stage of business and technology in further technical training in technical vocational schools both in country and overseas education. However, in this present time it is considered that modern technology is the centre of a country's development therefore Making a Living subject sets a foundation to compete within a world driven by business and technology. These will equip students with fundamental practical skills for further education and life after formal education.

Fundamental technical and vocational skills are vital for student's integral development to meet family, community, country and the world's demands. Currently technical skills needs more emphasis therefore it is anticipated that engaging in practical skills activities will improve standard of living and further contributes to the country's economic development.

Students will live entrepreneurial lives and have competence in some concepts of technology. Basic Technology skills offered through the Making a Living curriculum should be seen as an important subject. Therefore it is imperative that all teachers plan and teach this subject well.

Facilities and Equipment

Teachers are encouraged to use facilities and equipment available in their local surroundings to effectively deliver and meaningful practical hands on Making a Living lessons. There are tools and mechanical facilities in communities apart from the school which teachers can access to teach their Making a Living programs.

The availability of tools will vary from school to school. A lack of tools should not be used as an excuse for not doing practical activities. This is a challenge for schools to overcome. One option is to develop a collection of improvised tools for making things. Borrowing tools from parents of the students could be another option. Involving parents in project activities might also be a way of encouraging

them to share their tools with the class. Informing parents of the necessity of tools for Making a Living projects might lead to them putting pressure on the schools Board of Management to allocate funds for basic supplies. The school needs to budget to provide a basic kit of equipment for Making a Living practical activities. These items are expensive. They need to be used appropriately to prevent unnecessary damage, maintained thoroughly, appropriately cared for and stored securely when not in use. These facilities and equipment may include:

- sewing machines
- stoves
- firewood
- scraper
- carpentry tools and simple machines
- land
- livestock enclosures
- fish ponds
- trade stores
- markets
- timber
- financial and non-financial institutions
- equipment and resources available in the local environment.

Teaching and learning strategies

Making a Living is a practical subject that focuses on *"learning by doing"* rather than passive listening and observing. The syllabus promotes a student centered approach to learning. Making Living lessons must promote practical learning and teaching. Teaching strategies guide the teacher in disseminating the lesson content with appropriate learning strategies. Teachers should provide real life and relevant learning experiences for students to practice and develop critical thinking, problem solving, and decision making in what they produce.

For effective learning, the students' acquisition of knowledge, skills, attitudes and values in a lesson is highly achieved through appropriate teaching and learning strategies. Consider how students learn in order to select appropriate teaching and learning strategies. Teenagers are curious about the world they live in; teachers must engage them and motivate them in our classrooms. Teachers must ensure inquiry and problem based learning are offered. By giving students the opportunity to develop creativity and imagination through doing, we are imparting important thinking tools.

Inquiry learning

Inquiry learning places students at the centre of the curriculum and provides a range of learning opportunities that are reflective of their interests and relevance. Students should be given opportunities to develop valuable skills such as higher order thinking, collaborating, negotiating, information seeking, forming opinions, decision making, problem solving and communicating solutions.

Theory learning

Theory learning requires students to define, describe or explain and analyse the parts and functions of a tool, a plant or an animal. This type of learning often takes place in a classroom setting.

Practical learning

Practical learning requires the teacher to demonstrate the steps or process of performing a skill such as spraying chemicals on crops, sewing a dress, making and cutting a specific joint in carpentry or weaving a basket. Practical learning is effective when students observe the process in the demonstration and apply the skills in a familiar setting.

Experiential learning

Experiential learning is a process when a teacher allows learning to take place in a field or place of work. Students discover new knowledge as they practice the skill in a real life situation. Students are effectively involved in learning by observing and doing and also interacting with the work environment using 'all their senses.

Making a Living emphasizes the experiential learning approach for students to achieve the syllabus content standards.

Basic principles of teaching and learning

Teachers should:

- use real life or concrete examples as projects;
- encourage hands on learning experiences;
- develop local and community based projects;
- provide purposeful and meaningful learning experience;
- promote critical thinking and problem solving skills;
- encourage interaction with a range of individuals and contexts; and
- encourage active community participation.

Strategies that promote student- centred learning

A student centred approach focuses on learning as being the active construction of meaning by students and teaching as the act of guiding and facilitating learning. The following are examples of teaching and learning strategies that promote student - centred learning:

- building on students 'prior knowledge';
- bringing the community and its resources into the school and providing opportunities for students to go out into the community to learn; and
- providing opportunities for problem solving, decision making and taking action.

Teaching strategies

To assist and encourage students to learn, you perform certain tasks. These are referred to as teaching strategies. You need to engage students directly in teaching but there are times when you have to take charge of the learning in class and teach particular concepts and ideas.

Summary of teaching strategies

The process skills of investigation, planning, designing, implementation, producing and evaluation are essential and fundamental for teaching Making a Living. In each learning situation students are expected to investigate, plan, implement and evaluate their projects. Teachers need to use a range of teaching strategies in their teaching and learning activities.

The table below provides examples of teaching strategies to use in each of the process skills.

Process skills	Teaching and learning strategies
Investigation	• Brainstorming • Surveys • Structured questionnaires • Focus groups • Problem solving
Planning	• Projects • Problem solving • Skills practice • Group work
Implementation	• Demonstration • Modeling • Field trips • Group work • guest speakers
Marketing	• Individual sales • Group sales
Evaluation	• Discussion • Group work • Journal writing • Problem solving • seminars

Using groups as a teaching and learning strategy in Making a Living lessons

Using groups is an important strategy in Making a Living. Group work encourages students to participate in achieving a shared goal and collaborative learning. In deciding whether to use groups or not, you need to consider:

- your intended content standards;
- the extent to which the performance can be achieved by a group;
- the lesson content;
- the time allocated for the completion of the task;
- the classroom setting;
- available materials and resources; and
- the structure of the group based on gender, ability, cultural background and student preferences.

Groups work well when:

- the group decides upon their goal and time lines the tasks;
- students realize that success depends on the achievement of the whole group, not individuals;
- the task is broken down into subtasks which must be finished to successfully complete the overall task;
- the whole class is involved in the activity;
- everyone has a role to play, e.g. field trips or excursions; and

- memberships of small groups are changed regularly to provide an opportunity for all students to interact well with one another.

Strategies for organizing and managing groups

- *mixed- ability groups* - the more able learners in the group can help the others to master the work so that you need not teach some parts

- *same- ability groups* - the teacher can leave the groups of faster learners to get on with the work on their own. You can give extra help to individual learners in the lower groups.

- *using group learners/monitors* - you appoint faster. More able learners as group leaders or monitors who can help slower learners.

Planning and programming

Planning and Programming is organizing the content into a teachable plan for delivery in the classroom using long, medium or short term plans. The Making a Living programming for Grade 8 consists of:

- Content overview outlining the strands, units and topics;
- Detailed termly and yearly lesson overviews; and
- Sample weekly and daily plans.

In Grade 8, the content of this subject comprised of the following:

- 3 strands
- 9 units
- 15 content standards
- 49 benchmarks

Content Overview

This section presents to the teachers an overview of the content scope of learning for Grade 6 students given in the Making a Living syllabus. The broad learning content concepts are:

- Crop and Livestock Farming
- Business Environment and Resources
- Basic Technology.

Here is the scope of learning for Grade 8.

Strand	Units	Topic
Crop & Livestock Farming	• Crop farming	• Crop production • Vegetable farming project • Crop management.
	• Livestock farming	• Livestock production • Poultry project.
	• Land and water resource management	• Soil • Integrated farming project.
Business Environment & Practices	• Satisfying needs and wants	• Advertising • Insurance • Government Laws and the consumer.
	• Start a business and record keeping	• Retailers Pricing their Goods • Retailers' Records of cash and credit sales and purchases.
	• Business communication services	• Private companies providing communication services

Strand	Units	Topic
Basic Technology	• Introduction to resistant materials	• Properties of wood , metal, plastic • Designing and making products • Basic tools • Impacts of innovations.
	• Home management	• Home decoration • Basic cookery • Food and nutrition • Basic fibers and fabrics.
	• Media and communication	• Computer applications • Computer solutions using ICT • Basic computer ethics.

Grade 8 Teachable Concepts

Strand	Units	Teachable concepts
Crop & Livestock Farming	Crop farming	• Commodity(cash) crops • Cash crop management • Harvesting and processing cash crop • Factors affecting cash crop yield • Economic value of commodity crops
	Livestock farming	• Livestock farming project • Planning, designing and implementing a mini-livestock farming project
	• Land & water resource management	• Soil management sustainable practices • Integrated farming • Integrated farming project
Business Environment and Practices	• Satisfying needs and wants	• Cash society living
	• Start a business and record keeping	• Operating a small scale business • Record keeping of cash and credit sales
	• Business communication services	• Postal services and its functions • Types of services provided by postal services • How postal services contribute to the success of businesses

Strand	Units	Teachable concepts
Basic Technology	• Introduction to Resistance materials	• Security practices in workshop design • Safety practices in handling, maintaining and storing tools • Skills in the design process • Application of design process skills • Factors to consider when design products • Plastics, metal, wood • Technology literacy, design and evaluation processes
	• Home management	• Safety practices in the home • Hygienic practices in the home • Safety and risks management plans • Household responsibilities and managing time and resources • Factors of managing a home • Management plans for managing home resources • Food handling, food hygiene, kitchen hygiene, home management, Resources in the home, home design , home decoration, soft furnishings, elements of design, fibres , fabrics , basic stitches, basic fastenings, safety, recipe
	• Media & communication	• Discover components and functions of a computer • Function of computers and where they are mainly used • Safety practices and rules in the use of media and digital equipment • Basic safety and ethics in the use of media and equipment • Media information presentation and communication, • Computer hardware

Yearly Overview

The yearly overview is a plan designed to organize the learning content for Grade seven. It is a plan developed from the content overview and content expansion given in the Making a Living Syllabus. The syllabus is translated into a delivery plan in this guide for use in the classrooms for a school year. The plan also promotes sequencing of the learning content so that there is fair distribution of content standards throughout the school year. Teachers should do the following before the yearly overview is compiled. These are;

- read and understand the content overview section of the syllabus;
- identify number of strands, units and main concepts in each strand;
- check the education calendar and identify actual teaching weeks in each term;
- organize the strands and units according to the 36 weeks in a school year; and
- check to see that the units are fairly distributed throughout the year.

Yearly and Term Overview Sample Plans for Grade 8

A term overview is a plan of an instructional program for teaching. It provides the teacher with specific units, content standards and benchmarks suggested to be planned and delivered within a term. Teachers will need to organize the plan by week, strand, unit, topic, content standards and benchmarks

The overview plans guides the teachers to organize and prepare the teaching program for the number of weeks in each term. This information is extracted and laid out in the teaching program for each week accordingly. It is important to note that these terms (1-4) overview plans are suggestions for Grade eight school year. Teachers are encouraged to adjust this plan to cater for your students learning needs. Here is a suggested sample done for the Grade 8 teachers to use as a guide to start planning for the school year.

Sample Yearly and Term plan for Grade 8

Term	Weeks	Strand	Unit	Content Standard	Benchmark
1	2	Crop and Livestock Farming	Crop farming	**8.1.1**	**8.1.1.1**
	3	Crop and Livestock farming	Crop farming	**8.1.1**	**8.1.1.2**
	4	Crop and Livestock Farming	Crop farming	**8.1.1**	**8.1.1.3** **8.1.1.4**
	5	Crop and Livestock Farming	Crop farming	**8.1.2**	**8.1.2.1**
	6	Crop and Livestock Farming	Livestock farming	**8.1.2**	**8.1.2.2**
	7	Crop and Livestock Farming	Livestock farming	**8.1.2**	**8.1.2.3**
	8	Crop and Livestock Farming	Land and water resource management	**8.1.3**	**8.1.3.1**
	9	Crop and Livestock Farming	Land and water resource management	**8.1.3**	**8.1.3.1**
	10	Crop and Livestock Farming	Land and water resource management	**8.1.3**	**8.1.3.2** **8.1.3.3** **8.1.3.4**

Term	Weeks	Strand	Unit	Content Standard	Benchmark
2	2	Crop and Livestock Farming	Land and water resource management	8.1.4	8.1.4.1
	3	Crop and Livestock Farming	Land and water resource management	8.1.4	8.1.4.2
	4	Crop and Livestock farming	Satisfying needs and wants	8.1.4	8.1.4.3
	5	Crop and Livestock farming	Satisfying needs and wants	8.1.5	8.1.5.1 8.1.5..2
	6	Crop and Livestock farming	Start a business and record keeping	8.1.5	8.1.5.3
	7	Business environment and practices	Satisfying needs and wants	8.2.1	8.2.1.1 8.2.1.4
	8	Business environment and practices	Satisfying needs and wants	8.2.1	8.2.1.2 8.2.1.5
	9	Business environment and practices	Satisfying needs and wants	8.2.1	8.2.1.6
	10	Business environment and practices	Start a business and record keeping	8.2.2	8.2.2.1

Term	Weeks	Strand	Unit	Content Standard	Benchmark
3	2	Business Environment and Practices	Start a business and record keeping	8.2.2	8.2.2.2
	3	Business Environment and Practices	Start a business and record keeping	8.2.2	8.2.2.3
	4	Business Environment and Practices	Business communication services	8.2.3	8.2.3.1
	5	Business Environment and Practices	Business communication services	8.2.3	8.2.3.1
	6	Business Environment and Practices	Business communication services	8.2.3	8.2.3.2
	7	Business Environment and Practices	Business communication services	8.2.3	8.2.3.3
	8	Business Environment and Practices	Business communication services	8.2.3	8.2.3.3
	9	Business Environment and Practices	Business communication services	8.2.3	8.2.3.3
	10	Basic Technology	Introduction to Resistant Materials	8.3.1	8.3.1.1 8.3.1.2 8.3.1.3

Term	Weeks	Strand	Unit	Content Standard	Benchmark
4	2	Basic Technology	Introduction to resistant materials	8.3.2	8.3.2.1 -8.3.2.3
	3	Basic Technology	Home management	8.3.3	8.3.3.1
	4	Basic Technology	Home management	8.3.3	8.3.3.2
	5	Basic Technology	Home management	8.3.4	8.3.4.1 8.3.4.2 8.3.4.5
	6	Basic Technology	Home management	8.3.4	8.3.4.3 8.3.4.4
	7	Basic Technology	Media and communication	8.3.5	8.3.5.2
	8	Basic Technology	Media and communication	8.3.5	8.3.5.3
	9	Basic Technology	Media and communication	8.3.6	8.3.6.1 8.3.6.2
	10	Basic Technology	Media and communication	8.3.6	8.3.6.3

Suggested Yearly Lesson Title Overview

Content standard	Benchmark	Less #	Lesson Titles	Week
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.	**1**	The influence of cash cropping	**2**
		2	Choosing a cash crop	
		3	Requirements of cash crops	
	8.1.1.2. Analyse harvesting and processing processes of commodity crops and draw appropriate conclusions.	**4**	Planning a cash crop project	**3**
		5	Let's grow and look after our local cash crops	
		6	Fertilizing and spraying	
	8.1.1.3. Evaluate the factors affecting the yield of commodity crops and their value.	**7**	Harvesting and processing	**4**
		8	Weed control-weedicides and herbicides	
	8.1.1.4. Compare and contrast the economic value of commodity crops to the local and national economy.	**9**	Disease control-insecticides and pesticides	
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 and pruning, and thinning) for quality production.	**10**	Weeding and mulching	**5**
		11	Shade, drainage and pruning	
		12	Pruning and thinning	
	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	**13**	Pest and disease and their control	**6**
		14	Common pest and diseases	
		15	Appropriate pest and disease control measures	
	8.1.2.3. Examine the methods of controlling pests and diseases (traditional, artificial, and biological methods), and suggest ways for improving these methods.	**16**	Traditional methods of pest control	**7**
		17	Artificial methods of pest and disease control	
		18	Biological methods of pest control	

Content standard	Benchmark	Less #	Lesson Titles	Week
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.	**19 - 22**	What is organic farming?	**8**
		23	Keeping the land fertile	**9**
		24 - 26	Mini Organic farming project	
	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.	**27**	Resources needed to start a crop and animal project	**10**
	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.	**28**	Strategies for land and forest management	
		29	Forest conservation practices	
		30	Land conservation practices	
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.	**31**	Soil and man	**2**
		32	Soil management techniques	
		33	Legume plants and soil improvements	
	8.1.4.2. Evaluate the effectiveness of different soil management and sustainability practices, and propose ways for improving these practices.	**34**	Natural methods of soil improvement	**3**
		35	Artificial methods of soil improvement	
		36	Biological methods of soil Improvement	
	8.1.4.3. Use basic research skills to investigate and report on one case or example of soil management and sustainability.	**37 - 40**	Case study-Soil management and sustainability	**4**
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.	**41**	Integrated farming methods	**5**
	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.	**42-45**	Integrated farming processes	
	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.	**46-49**	How to operate a water crash and fish pond project	**6**

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. **8.2.1.4.** Discuss the types of advertising and their benefits to business.	**50**	What is advertising and who advertises?	**7**
		51	Methods of Advertising	
		52	Advertising and consumers	
	8.2.1.2. Define and discuss examples of insurance, advertising, law, policy, and regulation. **8.2.1.5.** Evaluate the different types of insurance policies available to businesses in terms of their benefits.	**53**	What is insurance?	**2**
		54	Compulsory insurance	
		55	Voluntary insurance	
	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.	**56**	What are laws in business?	**3**
		57	Government laws in business	
		58	Laws to protect consumers	
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.	**59**	What is selling price?	**2**
		60	What is freight?	
		61	Calculating selling price with freight	
	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.	**62**	What is a mark- up?	**3**
		63	Calculating a mark - up	
		64	Calculating profit	
		65	Documents used to record cash and credit transactions	
		66	Records of cash sales and purchases	
		67	Records of credit sales and purchases	
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.	**68**	Private communication service companies	**4**
		69	Types of services provided	
		70-73	**Case Study**- Digicel and B Mobile	**5**
	8.2.3.2. Examine the impact of the communication services provided by private communications companies on the success of business operations.	**74**	Impacts on the success of business.	**6**
		75	Benefits of private communication companies to other businesses and consumers.	
		76	How private communication companies benefit from its own success and failures	

	8.2.3.3. Use basic research skills to investigate a case relating to how a private communication company provides communication services to a business draw appropriate conclusions and suggest ways of improvement.	**77**	New technologies	**7**
		78	How new technologies promote business communication	
		79	**Case study**- Proposal writing	
		80	Questionnaires development	**8**
		81	Research participants	
		82-85	**Case Study** on how private communication companies provide services	**9**
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 on societies.	**86-87**	Technology and its impact on society	**8**
	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 own products and how they have benefited societies.	**88**	Basic tools and what they are used for	
		89-90	Basic tools and how to care for them	
	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.	**91-92**	Properties of wood, metal and plastics.	**2**
		93	Preparing metals, plastic and wood for use	
	8.3.2.3. Apply the design process to create a product that meets a particular need using appropriate basic tools.	**94**	Designs in existing products	
		95-96	Production processes (Stages)	
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.	**97**	Aspects of decorating a home	**3**
		98	How to decorate a particular room in a home	
		99	Make a product solution	
		100	Evaluate the finished product.	
	8.3.3.2. Analyse the reasons for applying proper food preparation and cooking techniques, and using appropriate cookery equipment in the kitchen.	**101**	Creating a recipe for a food product	**4**
		102	Modifying Recipes	

	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.	**103**	Household fabric items	
		104	Types of fibre and common fabrics	
8.3.4. Students will be able to explain how homes are designed and organized, food is prepared and served, and basic garments are made.	**8.3.4.1.** Explain the process of designing, organising and decorating a home. **8.3.4.5.** Explain and evaluate the process of making garments and suggest ways of improving it to allow for innovation.	**105**	Aspects of decorating a home	**5**
		106	How to decorate a particular room in a home	
	8.3.4.2. Examine the importance of resources such as time and equipment in planning and implementing household tasks.	**107**	Resources and time management in the Home	
	8.3.4.3. Discuss the processes for planning, preparing, and serving food.	**108**	Cooking and cooking methods	**6**
		109	Basic cooking methods and cooking equipment	
		110	Table setting and Serving	
	8.3.4.4. Recognise and demonstrate basic table manners and safe food and cutlery handling practices.	**111**	Table manners, handling and storage of cutlery.	
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.	**112**	History of computers	**7**
		113	What is digital media and its uses	
	8.3.5.2. Classify the various types of digital devices such as computers according to physical size, functionality, and purpose.	**114**	Types of computers	
		115	Characteristics of a computer	
	8.3.5.3. Identify and use basic digital devices such as basic computer applications to create solutions.	**116**	What is the digital media	
		117	Who uses digital media	**8**
		118	Impact of the digital media age	
	8.3.6.1. Examine the role and application of ICT in communication and problem solving.	**119**	Computer applications	
	8.3.6.2. Evaluate the use of ICT to create and communicate basic solutions, and create products such as photographs and designs.	**120**	Create product using computer applications	
		121	Modes of presentation	**9**
	8.3.6.3. Examine basic ethics when using digital devices and digital applications in ICT communication and problem solving	**122**	How to ethically use applications	

Weekly Plan

A weekly plan is an instructional program for teaching and learning. It gives the teacher specific outline of the units, content standards, benchmarks and learning activities for instruction which the teacher follows in a week. To compile a plan for a week's program teachers will need to organize the plan using;

- units;
- content standards;
- benchmarks; and
- lesson topics.

Teacher should use the term overview to see the order of units organized, and then use this order to plan the weekly program. The weekly plan is implemented through a timetable that is planned for the subjects in the primary level.

A sample program of a week's plan is given as a suggested guide. It is important to ensure that all the planned lessons for each term in each week are scheduled in the class weekly plans. The weekly plan is implemented is implemented through a time table

Weekly Sample Overview

Term_____ Week:_____ Date: _____ Year: _____

Subject	Unit	Content standards	Benchmark	Lesson No	Lesson Topic
Making a Living	Crop & Livestock farming	**8.1.1**	**8.1.1.1**	1 2 3	• The influence of cash cropping • Choosing a cash crop • Requirements of cash crops
English	Refer to English Teacher Guide & Syllabus	Refer to English Teacher Guide & Syllabus	Refer to English Teacher Guide & Syllabus	Refer to English Teacher Guide & Syllabus	Refer to English Teacher Guide & Syllabus
Mathematics	Refer to Mathematics Teacher Guide & Syllabus	Refer to Mathematics Teacher Guide & Syllabus	Refer to Mathematics Teacher Guide & Syllabus	Refer to Mathematics Teacher Guide & Syllabus	Refer to Mathematics Teacher Guide & Syllabus
Science	Refer to Science Teacher Guide & Syllabus	Refer to Science Teacher Guide & Syllabus	Refer to Science Teacher Guide & Syllabus	Refer to Science Teacher Guide & Syllabus	Refer to Science Teacher Guide & Syllabus
Social science	Refer to Social science Teacher Guide & Syllabus	Refer to Social science Teacher Guide & Syllabus	Refer to Social science Teacher Guide & Syllabus	Refer to Social science Teacher Guide & Syllabus	Refer to Social science Teacher Guide & Syllabus
Arts	Refer to Arts Teacher Guide & Syllabus	Refer to Arts Teacher Guide & Syllabus	Refer to Arts Teacher Guide & Syllabus	Refer to Arts Teacher Guide & Syllabus	Refer to Arts Teacher Guide & Syllabus

Arts	Refer to Arts Teacher Guide & Syllabus	Refer to Arts Teacher Guide & Syllabus	Refer to Arts Teacher Guide & Syllabus	Refer to Arts Teacher Guide & Syllabus	Refer to Arts Teacher Guide & Syllabus
Health Physical education	Refer to physical education Teacher guide and syllabus	Refer to physical education Teacher guide and syllabus	Refer to physical education Teacher guide and syllabus	Refer to physical education Teacher guide and syllabus	Refer to physical education Teacher guide and syllabus

Timetabling

It is important to be mindful of how much time there is to deliver the content of the subject in a week and throughout the school year.

Prescribe Time allocations

The following is a listing of the subjects and their time allocations in SBC respectively:

Senior Primary Time allocation			
Subject	**Grade 6**	**Grade 7**	**Grade 8**
English	280	280	280
Mathematics	240	240	240
Science	165	165	165
Social Science	160	160	160
Arts	140	140	140
Health and Physical Education	180	180	180
Making a Living	160	160	160
CCVE	120	120	120
Religious instruction	60	60	60
Local course	90	90	90
Assembly	75	75	75
Sports	60	60	60
Total	**1650**	**1650**	**1650**

These basically give a total time of 1650 minutes per week to deliver the 7 or 8 subjects in grades 6 to 8. As per the subject total times given a sample breakup for number of lessons per week is compiled for teacher's reference. Teachers are encouraged to utilize the prescribed time for the respective subjects to suit their context and students learning needs.

Sample Time Analysis for Grade 8

No:	Subjects	Prescribed Time Allocation	No: of lessons x minute/lesson	Suggested Minutes	+ minutes	- minutes
1	English	280	7 x 40			
2	Mathematics	240	6 x 40			
3	Science	200	5 x 40			
4	Social Science	160	4 x 40			
5	Arts	120	3 x 40			
6	HPE	160	2 x 40 1 x 60			
7	MAL	160	4 x 40			
8	CCVE	120	3 x 40			
10	Assembly	60	5 x 10			10
11	RI	60	1 x 40			20
12	Sports	60	1 x 60			
13	Block Time	30	1 x 40		10	
	TOTAL	**1650**	**40** *(instructional lessons weekly) + assemblies*	**1650**	**30**	**30**

Content Background

This section is presented to teachers to extract information to further enhance his or her knowledge on the subject content. It contains content background information to help the teachers plan and teach quality Making a Living lessons with less difficulty. The teacher is encouraged to use relevant sources or references available to build on existing content d

Unit 1: Crop Farming

Cash crops ranked by value are coffee, oil palm, cocoa, copra, tea, rubber, and sugar, vanilla has grown by individuals and companies in return for cash. Many people make a living from growing cash crops. The care and management of crops and animals is often referred to as **agriculture**. We grow, look after or manage crops and animals because they provide us food, fiber and other products to sustain life. Other uses of crops and animals include; source of income, we are able to trade in our communities or we can use the products for medical reasons. For example, leaves of crops can be used as herbs to heal illness.

Traditionally, only limited amount of crops and animals were taken care to maintain family livelihood. However, overtime improved and upgraded farming of crops and domesticated animals has created food surpluses which eventually have resulted into human civilization and modern development. In PNG, traditionally there are many benefits of crops and animals. They can help to heal or to protect humans from diseases and illness. Certain crops or animals represent traditional and cultural identity and heritage such as landmarks or songs. The traditional crops and animals also encourage a mixture of ways of care and farming usage and maintaining biodiversity.

In the modern times, the commercial benefits of crops and animals include high yields which result in surplus supply and distribution. The modern methods can allow fast growth of crops and animals which can generate income for families and communities. There are opportunities to market products in larger markets or export them elsewhere.

Selecting cash crops

Cash crops differ in tolerance for heat, cold, and moisture, so when selecting plants, small holder farmers must take into account climate of their region. Farmers also evaluate the soil type and how much sunlight falls on the proposed site, factors that affect the types of plants that can be grown in a particular area. The consider, too, the plants life cycle-how long it takes a plants a plant to grow, flower, produce fruits or seeds, and die. **Annual** plants such as corn and peanuts bloom and produce seed the same year they are planted, and then die when cold temperatures set in. **Biennial** plants such as hollyhocks live for two years, producing just leaves the first year. In the second year they produce flowers, and die when the weather turns cold. **Perennial** plants, which include shrubs and trees as well as flowers, are plants that live for three or more years.

Flower gardens may combine a variety of flowering plants or focus on just one type such as roses. Botanical gardens are designed to display plants for scientific and educational purposes, and in these gardens, the plants are often labelled with their names and optimal growing conditions.

Planting and transplanting

Before planting seeds, small holder farmers prepare, or till the soil using a variety of methods. Some turn over the soil with a spade, while others loosen the soil using a garden fork. Then they rake it smooth before planting. Some gardeners prefer to turn or loosen the soil because the oxygen that enters the soil when it is tilled by these methods hastens the breakdown of needed organic matter in the soil. Instead, they just dig a small hole for each seed or plant. To keep the soil loose so that the roots can develop easily. They keep it covered with grass clippings, compost, or other organic matter. The presence of this organic matter encourages large populations of worms, whose tunnelling break up the soil.

Gardeners plant seeds at different depths, depending on the seeds size and its requirements for light. Seeds contain starch and oil, stored food that provides the energy needed for sprouting, or germination. Small seeds do not hold much food, so they are sown on a close to soil surface, where they will not require a lot of energy to push through the soil. Larger seeds have enough food reserve to be planted deeper. This gives the root system more time to develop as the seedling, or young plant, grows up through the soil. Some seeds such as lettuce and cabbages, require more light to germinate, these seeds are sow on a nursery bed near to the soil surface and then transplanted after they are big enough.

Watering

Water is vital for plants as it is for other organisms. The pressure of water within the plants cells helps the plants to remain firm. Water also is essential for most of the plants biochemical reactions. In addition, water essential dissolved nutrients, How often plants need water depends on how hot, dry, and windy the climate is, how well the plants tolerate the dry conditions and to reduce water lost through evaporation, gardeners water their gardens in the early morning, when the air is cool and still, but the sun will soon dry the leaves.

The best method to water plants is to apply water directly to the soil, rather than over the tops of the plants. The water should be applied at a rate no faster than it can percolate into the soil so that the excess will not run off and be wasted. This technique reduces water lost through evaporation and keeps leaves dry, which discourages disease. A few tools for watering the soil efficiently include hoses with tiny holes all along their surface, called soaker hoses, plastic tubes with tiny holes punched in them at intervals, for drip irrigation; plastic jugs with small holes punched in the bottom, filled with water, and set beside a plant.

Evaporation of water from the soil can be minimized by covering the soil with a protective layer known as mulch. Mulch acts as a barrier that slows evaporation by reducing the amount of air and heat that reaches the soil surface. Materials that can be used as mulch include leaves, bark chips, grass clippings, and cardboards.

Crop management- good gardening practices include; plant spacing, weeding, watering, mulching, pruning, composting, drainage, pest control, application of natural and artificial fertilizers for additional nutrients and use of different cultivation practices for land sustainability.

Controlling pests and diseases

All plants are affected by pests and disease at some stage of their life. Most of them are due to unfavourable conditions for the chosen crop. This section talks mainly about how to control pests and diseases of cultivated crops
Some Common Garden Pests

Some Common Garden Pests

Common garden pests and diseases	Description
1. Aphids 	Aphids are sucking insects which attack the leaves and stems. When attacked, the leaves and stems of plants begin to look pale, thin, and weak. Aphids can change their colour to match plants parts and change from nymphs to adults, both with and without wings. When aphids in one plant get overcrowded, they develop wings and fly to another plant host of the same plant family
2. Borers 	These are boring insects which attack the flowers, pods, stems and roots. Borers hatch, eat and grow inside plant parts as caterpillars. The presence of borers is indicated by sudden wilting of plant tops
3. Bugs 	Bugs are sucking insects that stick to plants parts and drain plant juices. In case of meaty bug, eggs are laid in white cottony masses. Young bugs are crawlers like scale insects. Bugs secrete large amounts of honey dew that attracts ants and encourage black mould fungus
4. Caterpillars/worms 	These are chewing insects which usually develop from patches of eggs on the underside of leaves. The larval stage of moths and butterflies-caterpillars feed on foliage and tender stems

Common garden pests and diseases	Description
5. Bugs 	Some are tiny chewing insects that hatch and live mostly on underside of leaves. In case of white flies, stationary scale-like nymphs do most of the damage, sucking juices and extracting ants and encouraging fungus growth.
6. Hoppers 	These are boring insects which attack the flowers, pods, stems and roots. Borers hatch, eat and grow inside plant parts as caterpillars. The presence of borers is indicated by sudden wilting of plant tops
7. Scale insects 	Small insects, covered by protective shells that attached themselves to stems and under surface of leaves and suck out plant juice. Generally they are able to move about younger stages, but become more stationary or nearly so in adulthood.
8. Rats 	Rats are common pests in towns and rural areas. The biggest problem is in the house and store house where they eat food and at night nibble on people s feet. Rats do not like clean places. They are serious pests in plantations and gardens. They are most likely to be a problem on small islands with well-developed plantations because the development deprives them of bush and kills off many of natural predators like snakes, birds and lizards.

Preventative methods of controlling pests

Pesticides and weedicides use for controlling further damages to plants

Good garden preparation techniques

It is important to understand how water works. Avoid making way for water to speed down the hill. It must flow slowly. If water flows quickly down the hill it will carry a lot of soil with it.

When clearing a piece of land for gardening on a hill leave some trees. They will help to reduce the impact of rain drops. They bind the soil with the roots and lows down the run off. The trees also help to keep the soil moist and reduce the temperature.Pitpit and grass will also help to hold the soil

Make contour banks

Make terraces. Terraces are like steps. Plant food on the flat area and plant grass or trees on the edges. Terraces are difficult to make but they last a long time. Pigs also help to dig up soil. If erosion is a problem in your area soil which are later carried away by the water.

Unit 2: Livestock Farming

Farm animals are kept in enclosures and cared for until they are matured for sale. Common farm animals include; chicken (poultry), pigs, (piggery), cows (cattle), goats, ducks, rabbits, etc. Livestock farming consist of raising native and introduced animals on small and large scale for own consumption and for sale. Different livestock management systems are applied to raise and managed different livestock depending on availability of resources and farming land space. Livestock raising requires effective care management to ensure sustainability and profitability. In an Intensive management system- all animals are strictly kept in enclosures and fed and cared for until they are matured for sale.Semii intensive system partly allows for free ranging and then lock up and cared for by the farmer. In a free-range system animals are let loose and free to roam around, They feed themselves with anything thus they are left to graze or feed by themselves but are monitored by the farmer.

Unit 3: Land and water Resource Management

Soil is a living system and is made up tiny particles of rock in the form of sand, silt, clay, loam and organic matter. Different areas of PNG have different soil structures. The quality of soil structure is an important factor in healthy plant growth. There should be air gaps for healthy roots and to allow the roots to grow down to reach water. There are many things you can do to keep and build good soil structure and fertility. Several techniques are described in detail in the preceding pages.

All plants take from the soil, water and some essential foods (nutrients). The important food is minerals. They can be divided into two classes. Plants need a large amount of the first class which is known as major nutrients. Very small amounts of the second class are required. These are known as minor nutrients or micro nutrients. There is a very large of these. Each species of plant requires different amount of each nutrients, must be such that it suits the particular crop being grown. If a plant has too much or more nutrients, or not enough of one or more nutrients, the plant will not grow properly. The crop will be small. When there are not enough of one or more nutrients, we say there is deficiency.
Too much or not enough of one or more nutrients may make the plants look sick. The leaves may change colour or lose their colour. Leaves may be very small. Twisted or fall off. Sometimes the inside of plants rots. Here are some of these symptoms with effects of diseases and insect pests. If you see such signs consult an agriculture officer

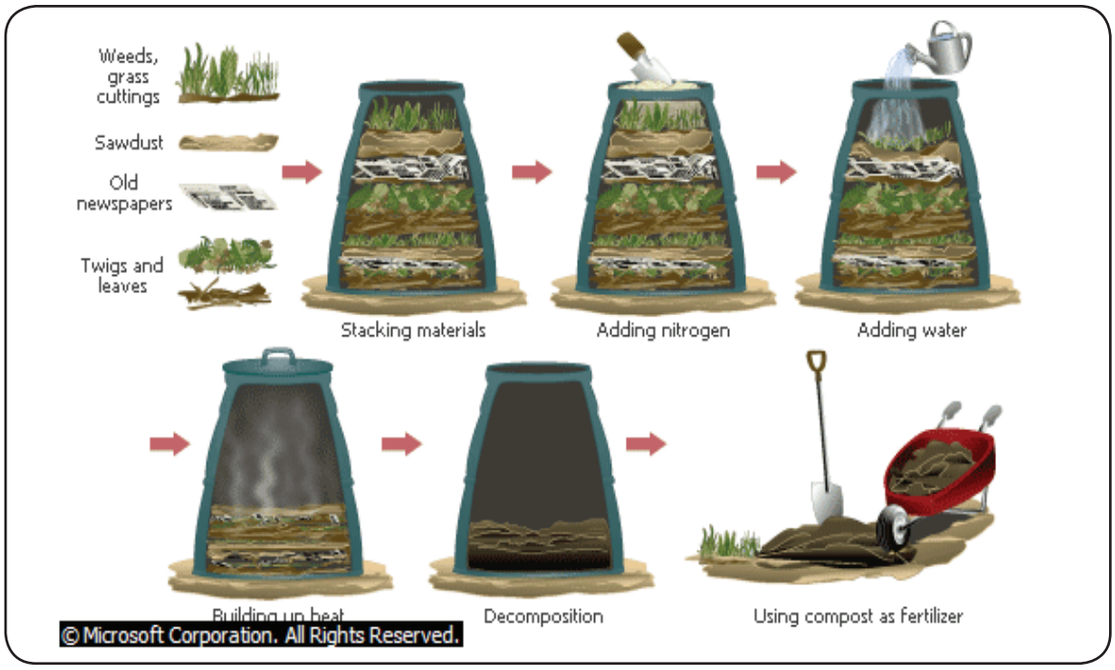
Traditionally, only limited amount of crops and animals were taken care to maintain family livelihood. However, overtime improved and upgraded farming of crops and domesticated animals has created food surpluses which eventually have resulted into human civilization and modern development. In PNG, traditionally there are many benefits of crops and animals. They can help to heal or to protect humans from diseases and illness. Certain crops or animals represent traditional and cultural identity and heritage such as landmarks or songs. The traditional crops and animals also encourage a mixture of ways of care and farming usage and maintaining biodiversity.

Soil improvement techniques

There are many things you can do to keep and build good soil structure and fertility. Fertilizers must be applied correctly to give good results. It is good to consider using organic fertilizers

1. Compost

Compost improves the structure of the soil, helps it holds water, and provides nutrients to help plants grow better. Compost is a dark brown substance which is produced when organic matter (such as plant and animal remains) rots because of work of bacteria and fungi; tiny organisms which we cannot see but which are present everywhere. These organisms turn the original material (leaves, fruit skins, manure, etc. into compost. Compost can be made from kitchen and garden waste and crop residues, so it is low-cost and readily available



Composting and Organic Waste

Waste from the garden, yard, and table does not have to be thrown away. It may be condensed and reused as a fertilizer through a process called composting. A compost pile may be built by layering different kinds of waste in a bin, leaving space between the layers for air to circulate. Nitrogen is added to the pile in the form of manure, meal, or greenery to generate heat. Heat facilitates rotting and kills all undesirable organisms. Once the pile is slightly dampened, it is covered. As heat and steam build up, the waste decomposes over time into a nutrient-rich substance called compost. The compost is then applied to plants as a fertilizer.

Compost improves the water holding capacity of the soil

Reasons for making compost

Using compost is cheap and easy to improve crop [yield and quality. Compost is a better way of feeding plants than chemical fertilizers because fertilizers provide nutrients for the plants but do not improve soil structure or quality. Compost is not easily wash away like chemical fertilizers so it provides nutrition for the soil in the long and the fertility even of poor soil can be gradually improved over a number of years.

Uses of compost

Compost can be used in several ways:

- It can be used as a medium for raising seedling alone or in combination with other nutrients like soil, coffee hulls, sawdust;
- It can be used as fertilizer by adding it to planting holes; and
- It can be used as soil amendments by simply adding it to the field and digging it.

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.

Land Resources

Land is an important resource for human livelihood. Land or Soil is the medium for plant growth. Plants take nutrients from the soil. Organic matter is also lost from the soil. Nutrients are lost by leaching during rainy season. It is important to add organic matter to the soil to maintain its structure and nutrient levels.

Land resources include minerals, crops, animals and forests. Minerals are significant land resource. They provide valuable income for the government, landowners and employees. The income is used to meet human needs in the services the government can provide and or personal us by individuals. Crops, animals and forests meet our physical needs for food, clothing and building material. The relationship between plants, animals and the natural environment can be maintained through good management practices.

Forests

Forests are an important source of timber for housing, boat building, firewood and logging. Forest plantations have been established in various parts of the country such as the pine forests at Bulolo – Wau, teak forests at Brown River in Central Province, Kerema and others in the Gogol valley, Kimbe and in the Highlands. The country has extensive forest reserves which cover three quarters of its land surface. Papua New Guinea produces considerable quantities of

timber. Plywood and wood chip production and milling are of some importance.

Water Resources

Water is also a very important resource for human's survival. Water resources come from rain, dams, tanks wells oceans, rivers, coral reefs, lakes, mangroves, wetlands and swamps. People need a water supply or drinking, cooking, washing and flushing toilets. Although Papua New Guinea has an abundance of water resources, 70% of the rural population has no access to safe water, and sanitation is a major problem. Furthermore, many people travel long distances to collect water.

Sustainable practices are currently being implemented to ensure seafood supplies for future generations. Sea shells may be sold, used as money or used to make necklaces, armbands and other decorative purposes.

Aquatic farming: is cultivating plants and animals using fresh and marine (salt water). Food from water sources includes fish, trout, tuna, sharks crab, prawns, crayfish, shell-food, oysters and turtles. Most of the country's freshwater and marine fishing is of a subsistence nature, but there is some commercial fishing especially for prawns, crayfish and tuna.

Some common aquatic farming projects include; fish ponds, water crass cultivation and lobster farming at a small scale to generate an income

Strand 2: Business Environment and Practices

Unit 1: Satisfying Needs and Wants

Subsistence Living

In traditional society, a family would grow its own food. Men and women would go hunting and fishing. Things such as houses, axes, clay pots and billums were made by people themselves. People lived with their own clans in villages. They helped each other. No food or things were bought from other countries. Sometimes people got things from their neighbours. They exchange goods and services with their neighbours with those things that they do not have. This type of change is called Barter trade. When people depend on themselves for food and the things that they need, this is called subsistence living. Subsistence living is when people grow the food that they need and make the goods they want for themselves.

Goods and services

All people need different things in order to live. Food is the most important thing that people need. Houses keep people dry and warm when it is raining. Men need spears for hunting. Women use billums to carry food. Sometimes they carry their babies in billums.

How do people get goods and services?

The only way people can get goods and services is working. The work done by people to get the goods and services is called production. Building a canoe, making a billum and fetching water are examples of production. The person who makes a good is a producer. The person who gives a service is also a producer. People can only get goods and services by working Good and services were exchange with neighbours for goods and services in return without the use of money. The person who uses the goods and services is a consumer. A person produces goods and services in subsistence living so he can use those goods and services

Unit 2: Starting a Business and Record Keeping

The cash society

Today we use money to buy goods and services we want. In Papua New Guinea the money used is called kina and toea. Each country has its own money. Whatever the money is called, it is usually in the form of notes and coins. People use notes and coins to buy food, clothes and rides on PMV. Another name for notes and cash is cash.

People who no longer lead a subsistence life need cash. Many people today do not grow all their own food. They use cash to buy rice, tins of fish and other goods they need. People need cash for many reasons. Money and cash has become important in people's lives. Without cash people cannot get the goods and services they want. Money is used in the exchange of good and services. Most people no longer produce the goods and services they need by themselves, or use barter to get all the goods and services they want. Today people use money. With this money they can buy goods they fall short of

How people get money?

To get money people must produce either goods or services. A school teacher gets money from the government. He is paid for teaching. He provides a service, and in return, he gets money. A trade store owner sells goods. People give him money to get the goods which are in his store.

Working for others

Some people work for the government. School teachers, doctors and policemen work for the government. The government tells them where to work and what to do. To have job means to work for someone else. Someone can have a job with the government, with another person, or with a company.

Working for oneself

Some people do not work or for others. They work for themselves. They become specialist. They produce certain types of goods or provide certain types of service; they sell these goods and services for money. When people carry out an activity of selling goods or services for money, this is called **business.**

A business in concerned with selling goods or providing services in return for money, A business can be started up by one person or by many people. A man who owns a business can pay other people to work for him. A business man does not work for other people or for the government.

People get money in two ways. Some people have jobs and are paid by others to work. Some people are businessmen. They get their money be selling goods or by providing services.

Making a profit

Businesses produce goods and services to sell for money. This is how businessmen get their money. The money that comes in from selling goods and services is called revenue. A trade store owner gets his revenue from selling tin fish and rice. The money that people give to him is his revenue.

Expenses

A businessman will have to do some work or buy some materials before he can produce a good to sell. A businessman usually has to pay out some money before he can get his revenue. Any money that a businessman must pay out is call expenses.

Profit depends on three things
How much profit a businessman makes depends on:

1. The quantity of the goods he sells
2. The price of the good
3. The total expenses

Unit 3: Business Communication Services

Benefits of Telecommunication in Business

One of the most important tools for a company's success is telecommunication. It enables companies to communicate effectively internally and externally, attract and inform potential customers and give quality service to their current client base.

Mobile telecommunication gives companies the opportunity to introduce more flexible working by allowing employees to work effectively from home. The introduction of smart phones gives new levels of productivity and capability. Communication is a crucial aspect of any business, and the availability of telecommunication assist a business – to process transaction immediately from many remote locations, exchange business documents example digicel sms banking, phone credit top ups, emails, voicemails etc…

Business Practices and Principles

- Integrity is the core value. The goal must be to conduct business fairly and honestly.
- Respect for laws and culture.
- Values for customers.
  - Responsible employment practices
  - Dealing with dilemmas
- Monitoring and accountability.

Business Advertising

Print Advertising – is when advertisements are published in printed materials. eg newspapers, magazines, pamphlets. etc.
TV Broadcasts' – Electronic media is another advertising avenue that businesses explore and use to communicate services and products
Trade Shows - Setting up booths at Trade Shows to advertise services and products.
Product Placement – Product placement is when a product is advertised by a not –so- subtle appearance in a movies, TV Show, Music, Video.

Strand 3: Basic Technology

Basic Technology embodies the perception of technology from the 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 design world. Technology has been developed through working with and building with materials and tools and has been an integral way of society.

Unit 1: Introduction to Resistant Materials

Resistant materials are materials that are difficult to work with such as woods, metals and plastics. The unit is about designing products for the real world. It's about taking an idea from the moment of inception to an actual final product that can be used and evaluated. The broad skills acquired will be sketching, technical drawing, 3D modeling and ICT skills as well as the practical skills that are needed to make wood, metal or plastic products.

1. Resistant materials

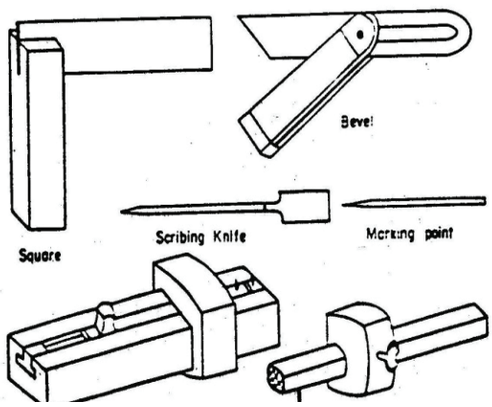
Resistant materials are woods, metals and plastics that are difficult to work with and will need proper skills and processes and tools. Each material have properties that are considered when designing a solution. In this study, problem solving skills and communication skills are developed. The correct use of tools are developed in the making of a product. Safety is very important when working with resistant materials.

2. Tools

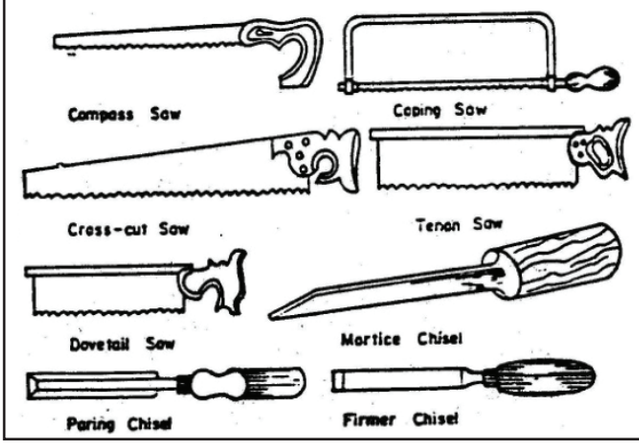
Carpentry Tools

1) Marking and setting out
2) Cutting
3) Boring
4) Planing tools
5) Hammers and screw drivers
6.) Level

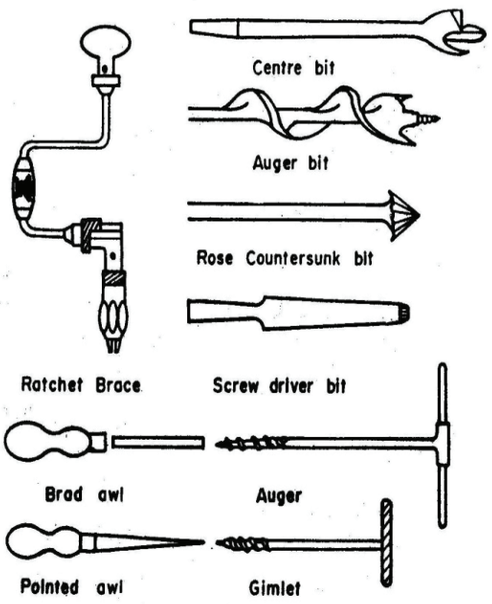
1. Marking and setting out



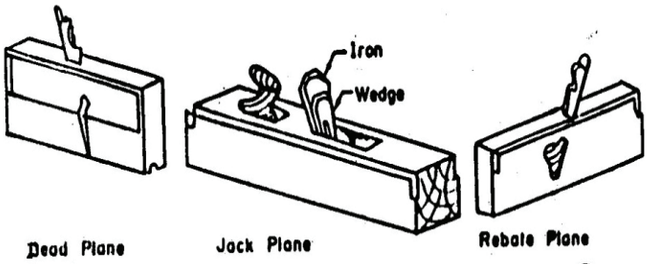
2.Cutting



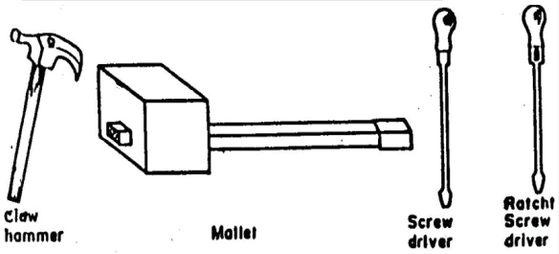
3. Boring



4. Plane



5. Hammers and screw drivers



6. Levels

Levels

Carpenters, Spirit Level

Techniques/Processes

1. Resistant Materials Skills	
cutting drilling sanding measuring Forming and shaping	hammering selecting tools screwdrivers choosing materials boring

4. Health and Safety

Health and safety is paramount when teaching a subject like Resistant Materials. Students are taught to handle tools and equipment with care and to use the appropriate tools and safety wear for the jobs that they are doing.
When using basic hand tools for the first time pupils are closely supervised, this level of supervision lessens when they become more confident and competent.
It is hoped that students will achieve some knowledge and understanding of how to handle tools appropriately with confidence and competence for those little jobs that need doing in and around the house in their everyday lives.

Unit 2: Home Management

Home management covers the actions necessary to take of the home one lives in, and to keep all the systems within the home, under control and functioning properly. It includes the planning and organization of available resources to ensure the home is functioning well. The aspects of textiles, food and nutrition and home decorations are taught to develop management of resources to improve lives.

Unit 3: Media and Communication

focuses on the understanding of the media and the basics of a computer and the processes that introduces the concepts of technology literacy. Today's society is shaped by the fast growth and development of information technology resulting with its great dependency on the knowledge and competence of individuals from the IT area.

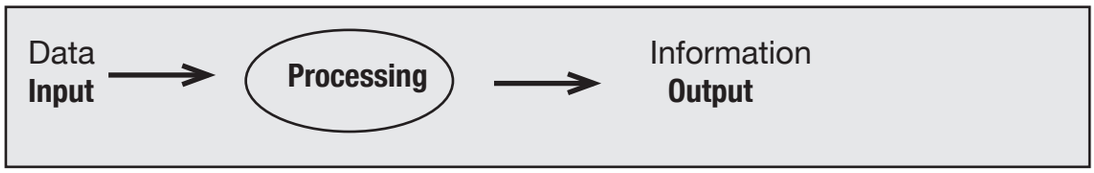
Computer

A computer is an electronic device, operating under the control of instructions stored in its own memory that can accept data (input), process the data according to specified rules, produce information (output), and store the information for future use.

Functionalities of a computer

Any digital computer carries out five functions in gross terms:

1. Takes data as input;
2. Stores the data/instructions in its memory and use when required;
3. Processes the data and converts it into useful information;
4. Generates the output; and Controls all the four steps above.
5. Controls all the four steps above

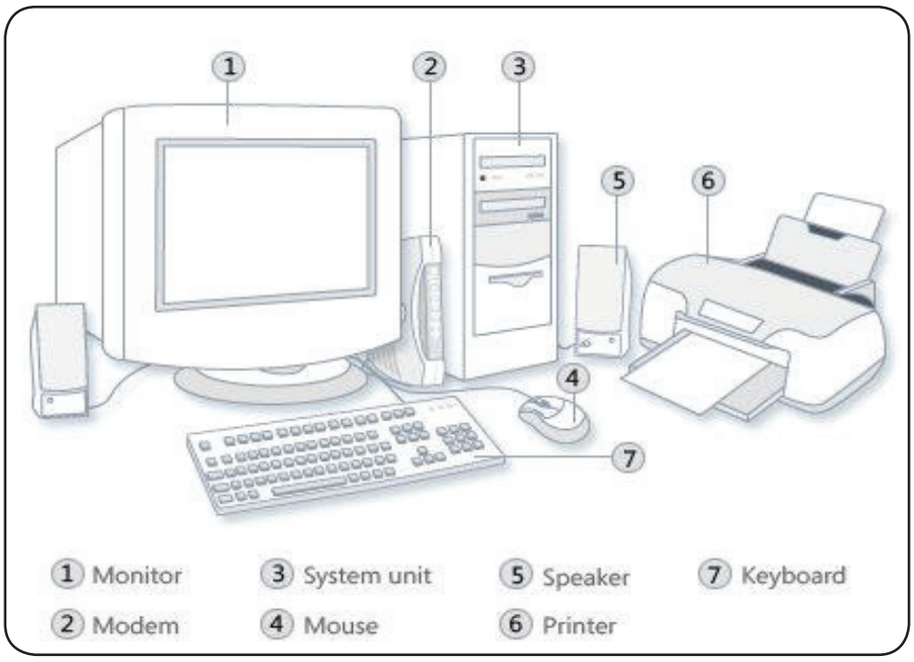


Computer Components

Any kind of computers consists of HARDWARE AND SOFTWARE.

Hardware:

Computer hardware is the collection of physical elements that constitutes a computer system. Computer hardware refers to the physical parts or components of a computer such as the monitor, mouse, keyboard, computer data storage, hard drive disk (HDD), system unit (graphic cards, sound cards, memory, motherboard and chips), etc. all of which are physical objects that can be touched.



Input Devices

Input device is any peripheral (piece of computer hardware equipment to provide data and control signals to an information processing system such as a computer or other information appliance.

Input device Translate data from form that humans understand to one that the computer can work with. Most common are keyboard and mouse.

Example of Input Devices:

1. Keyboard 2. Mouse (pointing device) 3. Microphone 4. Touch screen 5. Scanner 6. Web cam 7. Touch-pads 8. Graphics Tablets	9. Cameras 10. Microphone 11Trackballs 12. Bar code reader 13. Digital camera 14. Joystick 15. Game pad 16. Electronic White-board

Note: The most common use keyboard is the QWERTY keyboard. Generally standard Keyboard

Output devices

An output device is any piece of computer hardware equipment used to communicate the results of data processing carried out by an information processing system (such as a computer) which converts the electronically generated information into human readable form.

Example on Output Devices:

1. Monitor 2. LCD Projection Panels 3. Printers (all types) 4. Computer Output Microfilm (COM)	5. Plotters 6. Speaker(s) 7. Projector

Computers classification (Types of Computers)

Computers can be generally classified by size and power as follows, though there is Considerable overlap:

Personal computer: A small, single-user computer based on a microprocessor. In addition to the microprocessor, a personal computer has a keyboard for entering data, a monitor for displaying information, and a storage device for saving data.

Workstation: A powerful, single-user computer. A workstation is like a personal computer, but it has a more powerful microprocessor and a higher-quality monitor.

Minicomputer: A multi-user computer capable of supporting from 10 to hundreds of users simultaneously.

Mainframe: A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.

Supercomputer: An extremely fast computer that can perform hundreds of millions of instructions per second.

Laptop and Smart-phone Computers

Laptop: Laptop is a battery or AC-powered personal computer that can be easily carried and used in a variety of locations. Many laptops are designed to have all of the functionality of a desktop computer, which means they can generally run the same software and open the same types of files. However, some laptops, such as net-books, sacrifice some functionality in order to be even more portable.

Notebook: A notebook is a type of laptop that is designed to be even more portable. Net-books are often cheaper than laptops or desktops. They are generally less powerful than other types of computers, but the same things you can do with a desktop or laptop computer. These include tablet computers, e-readers, and smart-phones.

Tablet Computers: Like laptops, tablet computers are designed to be portable. However, they provide a very different computing experience. The most obvious difference is that tablet computers don't have keyboards or touch-pads. Instead, the entire screen is touch-sensitive, allowing you to type on a virtual keyboard and use your finger as a mouse pointer. Tablet computers are mostly designed for consuming media, and they are optimized for tasks like web browsing, watching videos, reading e-books, and playing games. For many people, a "regular" computer like a desktop or laptop is still needed in order to use some programs. However, the convenience of a tablet computer means that it may be ideal as a second computer.

Smart-phones: A smart phone is a powerful mobile phone that is designed to run a variety of applications in addition to phone service. They are basically small tablet computers, and they can be used for web browsing, watching videos, reading e-books, playing games and more. They provide enough power for email and internet access, which is where the name "net-book" comes from.

Mobile Device: A mobile device is basically any hand held computer. It is designed to be extremely portable, often fitting in the palm of your hand or in your pocket. Some mobile devices are more powerful, and they allow you to do many of the same things you can do with a desktop or laptop computer. These include tablet computers, e-readers, and smart-phones.

Computer Software: A computer software or simply software is s common term that refers to a collection of data or computer instructions that tell the computer how to work, in contrast to the physical hardware from which the system is built, that actually performs the work.

Types of computer software

There are two main types of software: **systems software** and **application software**.

Systems software includes the programs that are dedicated to managing the computer itself, such as the operating, file management utilities and disk operating systems. Application software products are designed to satisfy a particular need of a particular environment.

Application software products are designed to satisfy a particular need of particular environment. All software applications prepared in the computer lab can come under the category of Application software. Examples of Application software are the following; payroll software, student record software, inventory management software, income tax software, Microsoft office suite software, Microsoft word, Microsoft excel, Microsoft Power Point

Guided Lessons

This section contains sample guided lessons that you can try or adapt to suit your class. Table of Knowledge, Skills, Attitudes and Values are also provided to assist you in developing other lessons.

1. Sample Guided Lessons

There are 6 sample guided lessons in this teacher guide as a guide for you to start of your classroom teaching. These sample lessons are taken from the yearly lesson overview. These sample lessons are coming from different units under each strand.

The guided lessons for Grade 8 are sample lessons developed from the benchmarks derived from the content standards statements prescribed in the syllabus. They are only lesson guides to guide and direct the teacher to teach the content the content of the lesson in a sequential manner providing appropriate students learning activities to demonstrate the concepts, skills, attitudes and values appropriate for the grade level. The teacher is given an option to either follow the guided lesson or use the guided lesson to plan their own lessons accordingly

2. Knowledge, Skills, Attitudes and Values (KSAVs)

There are nine- eight sample Knowledge, Skills, Attitudes and Values (KSAVs) in this Teacher guide as a guide for you to start of your classroom teaching. These sample knowledge, skills, attitudes and values (KSAVS) are taken from the yearly lesson overview.

3. Topics

There are lesson topics for each unit in the Teacher guide and each week has three lesson topics including one practical project lesson which is a follow up of theory lessons taught in the week.

Suggested Lesson Titles for Grade 8

The lesson titles are suggested lessons for you. The lesson titles are created from the benchmarks given in the syllabus. They are recommended for delivery in Grade eight classrooms. There are **122** suggested teaching lesson titles and **22** practical projects which give a total of **144** lessons of Making a Living in the year in the teacher guide for you to teach. You are given the flexibility to formulate your own lesson titles if you are not comfortable with the suggested lesson titles.

Guided Lesson Template

The guided lesson template is used across Grades 6 to 8. The template shows how the guided lessons can be planned. It is easy to follow and allows teachers to be creative and make necessary alterations to cater for their students' learning needs. The guided lesson template is given for your reference below. The parts

of this guided lesson template include:

1. Sample lesson plan template;
2. Sample guided lessons; and
3. Table of Knowledge, Skills, Attitudes and Values for the lessons to be written by teachers

Sample Lesson plan template

Term: **Week:** **Day:** **Lesson No:** *Follow the school calendar for term, week, day and lesson no:*

Strand: Copy from the syllabus **Unit:** Copy from the syllabus

Content Standard: Copy from the syllabus

Benchmark: Copy from the syllabus

Lesson Title: Write title of the lesson as given in the grade lesson title table

Lesson Objective: Write objective of the lesson

Key concepts

• Write concepts of the lesson as guided in the KASV section

Knowledge	Skills	Attitudes and Values
write the knowledge students will acquire from this lesson	write the skills students will practice in this lesson	write the attitudes/values students will acquire from this lesson

Resources: List of materials teacher and students will use including references

Teacher's notes: Brief descriptions of the background information of the lessons and what is expected of the teacher

Lesson Procedures:

Introduction: *Brief descriptions of what the lesson is about.*

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Body: *Gives the teacher and student activities separately.*

Teacher's Activity	Student's Activity
Write the things teacher will do in this lesson	Write the things students will do in this lesson

Conclusion: *Write the things you will do to finish of the lesson ……*
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Guided Lesson Samples

The guided lessons for Grade 8 is sample lessons developed from the benchmarks derived from the content standards prescribed in the syllabus. They are only lesson guides to guide and direct the teacher to teach the content of the lesson in a sequential manner providing appropriate students learning activities to demonstrate concepts, process skills, attitudes and values appropriate for the grade level.

The teacher is given an option to either follow the guided lesson or use the guided lesson to plan their own lessons.

Strand 1: Crop and Livestock Farming
Unit 1: Crop Farming

Lesson No: 1 **Unit : 1 Crop Farming** **Time: 40 minutes**

Lesson Title: The influence of cash cropping.
Content Standard: 8.1.1. Students will be able to identify common com modity crops and illustrate their harvesting and processing processes, and examine their economical valuesBenchmark:
8.1.1.1. Identify and illustrate the harvesting and processing processes for commodity crops such as coffee, cocoa, and oil palm
Lesson Objective: The students will be able to identify and classify different types of garden tree crops.

Key Concepts:

Knowledge	Skills	Attitudes and Values
• Effects of supply and demand will determine price. • Economic benefits of cash crops. • Impact on the lives of people.	• Brainstorm and identify the importance of cash cropping. • Discuss and share ideas on the economic benefits • Apply appropriate skills in managing cash crops to have high crop yield to satisfy customers demand.	• Appreciation of the value of cash crops. • Being responsible and show initiative. • Have pride in achievement.

Teaching and Learning activities

Lesson Parts	Teacher Teaching Activities	Students Learning Activities
Introduction (10mins)	• Teacher shares his /her experiences of being selective when buying cash crops at the market. • Ask students to have their oral explanations in pairs. • Teacher randomly selects a male and a female student to express themselves. • Teacher explains the lesson topic and leads the students focus on the lesson procedures.	• Students pay attention to the teacher • Explanations or discussions done orally in pairs. • Selected students do their oral presentations on cash crops they buy at the market.
Body (20 mins)	• Teacher draws students focus to the lesson topic. • Distribution of group activities. 1. What are cash crops? 2. Write down 5 cash crops from your local area. 3. How can cash crops influence the lives of our local people? • Teacher supervises and assists students as they do their activities in groups. • Teacher summarises the activity by presenting the prepared lesson notes on the board.	• Students listen attentively to the teacher's explanation of the lesson activity. • Group activity • Selected group of students present their work to the whole class. • Read through and copy the summary notes from the board.
Conclusion (10 mins)	• Teacher briefly revise lesson notes. • Appraise students for their participation during the lesson	• Students answer related questions. • Students complete copying summary notes.

Teacher Reflection/Evaluation

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Resources: Chalk board, student's exercise books, cartridge papers, markers, pictures of various cash crops.

References: Making a Living Teachers Resource Book, Outcomes Edition for PNG, Page 27.

Teachers Notes

This lesson under the unit crop farming looks at the common commodity crops and the appropriate management practices which also have an impact on peoples' lives. The teacher should provide background information and pictures of a variety of commodity crops appropriate for this lesson.

Sample Lesson No: 2

Lesson No: 13 **Unit 2: Livestock Farming** **Time: 40 minutes**

Lesson Title: Let's plan an integrated project.

Content Standard: 8.1.3. Students will be able to plan, design, and implement a common livestock project suited to local conditions and resources aim at generating an income.

Benchmark: 8.1.3.1. Gather information and plan for the type of livestock project to be implemented

Lesson objective: The students will be able to work cooperatively as a group and list the requirements involved in farming different kinds of livestock.

Key concepts

- Planning is an initial stage in any activity that needs to be done successfully.
- Many factors need to be considered when selecting and planning a project based on an identified need: **1. Resources 2. Location 3. Viability 4. Task and Activities.**
- To be successful, we need to be creative, imaginative and inventive in planning Livestock Projects.
- Acquire appropriate management skills.

Knowledge	Skills	Attitudes and Values
• Importance of planning • Factors to be considered when selecting and planning a project.	• Discuss the importance of planning a livestock project. • Apply appropriate management skills when planning and selecting a project.	• Appreciation of the value of the importance of planning. • Be creative and critical thinkers. • Appreciation of the value of opinions and suggestions during planning.

Teaching and Learning Activities

Lesson Parts	Teacher Teaching Activities	Students Learning Activities
Introduction (10mins)	• Teacher asks students to share their experiences of any livestock farming within their communities. • Ask general questions as a lead up activity for the lesson	• Students speak freely about any livestock farming in their communities. • Students answer posed questions
Body (20 mins)	• Teacher draws students focus to the lesson topic. • Display lesson notes on board and give detailed explanations of areas to consider when doing a plan. • Teacher groups students and give their activity to plan a small livestock project.	• Students listen attentively as the teacher explains the importance and procedures of planning a Livestock Project. • Students read and copy lesson notes. • Students do a plan using the procedures explained by the teacher.
Conclusion (10 mins)	• Teacher supervises and checks the progress of each group. • Appraise students for their participation during the lesson	• Students continue working on their plan as a draft.

Teacher Reflection/Evaluation

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Resources: Chalk board, student's exercise books, cartridge papers, markers, pictures of various livestock projects.

References:

Making a Living Syllabus, Primary Grades 6,7 & 8. Standards Based.
Making a Living Book 2, Outcomes Edition for PNG, Page 138 and 176.

Teachers Notes

This lesson under the unit livestock farming looks at the planning, designing and implementation of a common livestock farming and the appropriate management practices which also have an impact on the producers and consumers. The teacher should provide sufficient background information and pictures of a variety of livestock project suitable locally to assist students in drafting their project plans.

Unit 3: Land and Water Resource Management
Sample Lesson: 3

Lesson No: 31

Lesson No: 31 Unit 3: Land and Water Resource Management Time: 40 mnt

Lesson Title: Soil and man.
Content standard: 7.1.5. Students will be able to identify and investigate the factors affecting soil formation and plant growth.

Benchmark: 8.1.4. Students will be able to explain the different soil management and sustainability practices
Lesson objective:
The students will be able describe how man can affect the soil by growing crops.

Key concepts

- Importance of maintaining soil fertility.
- Valuable resource to man
- Positive attitude to agriculture
- Climate also influences man's use of the soil for agriculture
- Acquire appropriate soil management skills.

Knowledge	Skills	Attitudes and Values
• Importance of soil to man • Positive attitude to agriculture can assist in nurturing the soil. • Appropriate soil management skills	• Discuss the importance of soil. • Apply appropriate soil management skills when cultivating the land.	• Appreciation of the value of the importance of soil to man. • Care and respect for the soil when cultivating the land. • Show initiative.

Resources
Chalk board, student's exercise books, cartridge papers, markers, pictures of soil used by man for cultivation.

Reference
Making a Living Syllabus, Primary Grades 6,7&8. Standards Based.
Agriculture for Melanesia Page 24-26.

Teachers notes

This lesson under the unit land and water resource management looks at soil and man. The important aspects of managing soil will help the soil to regain its fertility and produce high crop yield for man.

Teaching and Learning Activities

Lesson Parts	Teacher Teaching Activities	Students Learning Activities
Introduction (10mins)	• Teacher ask students to express their view on the importance of soil to man	• Selected students share their view to the whole class.
Body (20 mins)	• Delegate group activities. • Supervise and assist students. • Ask selected students to present their activity. • Read through summary notes and explain each concept.	• Students work on their delegated tasks • Students present their completed task. • Listen for clarity as the teacher summarizes lesson notes.
Conclusion (10 mins)	• Revise key concepts of the lesson. • Appraise students for their participation during the lesson.	• Students complete copying their notes.

Teacher Reflection/Evaluation

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Strand 2: Business Environment and Practices
Unit 3: Business Communication Services
Sample Lesson: 4

Lesson No: 34 **Unit 1: Satisfying Needs and Wants** **Time: 40 mnt**

Lesson Title: Private Communication Services Companies
Content Standards: 8.2.3. Students will be able to examine the different types communication services provided by private communications companies and their impact on the success of business operations

Benchmark: 8.2.3.1. Identify and explain the different types of communication services provided by private business companies to assist business operations.

Lesson Objective: Students can be able to recognize and identify the types of private communication service companies and how the services they provide contribute to the success of business operations locally and globally (n the business environment) their importance and benefits to the businesses, government and NGOs.

Key Concepts:

- Types of Private communication service companies
- Different Types of private communication services companies locally and globally
- The contributing factors by private communication service companies to the success of business operations locally and globally
- The benefits of private communication services companies to business, government and NGOs
- How new technologies used in the private companies services promote effective communication.

Knowledge	Skills	Attitudes and Values
• Know the different types of private communication service companies • Know the contributing factors to the success of business operations locally and globally • Know the benefits to businesses, government, NGOs • Know how new technologies used in the private companies services promote effective communication	• Define the term 'Private Communication Service Companies • Identify and discuss the different types private communication service • Discuss the contributing factors the success of business operations locally and globally • Describe the benefits of private communication service companies and new technologies to business, government, NGOs	• Appreciate and respect the private communication services and new technologies.

Resources

Pictures, Cartoons from computer slides, newspaper articles of different private communication services companies locally and globally in the business environment.

References

Commerce for Melanesians - Second Edition - Trevor Tindal, Make a Living - Grade 8 Student's Book - Brian Robertson, Trevor Tindal Villacorta- Swallow

Teacher's Notes

Teacher to define and explain the concept 'private communication service company' Students can be able to recognize and identify pictures or cartoons from computer slides depicting different types of private communication service companies and the services they provide. Students can discuss the benefits of private communication service companies and the use of new technologies to business, government and NGOs. Teacher to explain the contributing factors by private communication service companies to the success of business operation locally and globally.

How do new technologies used in the private service companies promote effective communications?

Teaching and Learning Activities

Lesson Parts	Teacher Teaching Activities	Students Learning Activities
Introduction (10mins)	• Show students pictures or cartoons from computer slides about the different private communication service companies and service they provide • Define and explain the concept 'private communication service companies' • Introduce the lesson to the students through guided questions	• Students recognize and identify the different types of private communication Service companies and the service they provide • Identify the kind of specialized services they provide.
Body (20 mins)	• Students put into groups to discuss activities assigned to the groups • Explain the assigned activities to the groups by applying the Think-Pair-Share • Give instruction on how they are going to complete group discussion • Facilitate students group work by supervising, elaborating if needed assistance	• Students fall into their group to complete the assigned activities applying the Think-Pair- Share-Strategies of learning. • Students in their group discussion work on the assigned activities applying the teaching and learning strategies. • Students refine their group discussion ready for presentation. • Presentation of group discussion by all group members.
Conclusion (10 mins)	• Class discussion on the overall presentation • Appreciate and praise students for the effort put into their discussion and presentation.	• The rest of students listen attentively to the presentation • Students give their general comments or ask related questions.

Teacher Reflection/Evaluation

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Strand 3: Basic Technology
Unit 1: Introduction to Resistant Materials
Sample Lesson: 5

Lesson Title: Define technology and its impact on society	
Lesson No: 61	
Strand: 3. Basic Technology	**Unit: 1 Introduction to Resistant Materials**
Topic: Design Culture	
Content Standard:	8.3.1. Students will be able to explain basic technology and examine its impact on societies
Benchmark	8.3.1.1 Explain basic technology and examine its impact in societies
Key Question:	1. What are the characteristics of resistant materials? 2. How is one material different from the other material?
Lesson objective (s) :	1. Outline the properties of woods, metals and plastics 2. Explain each of the properties of resistant materials
Teaching period:	40 minutes
Preparations:	3 Manila Folders, A3 paper Chart of descriptors for students to use to outline properties of woods, metals, plastics Definitions of each of the properties of resistant materials, pictures of products
Key concepts(s):	Properties of resistant materials : Malleability, toughness, hardness, conductivity, strength, elasticity

Learning content

Knowledge	Skills	Attitudes and Values
• Properties of resistant materials - malleability - toughness - hardness - conductivity - strength - elasticity (ref technology student.com)	• Research and outline the properties of wood, metals, plastics.	• Appreciate the properties of materials when working on projects

Teacher's Notes:

1. Resistant materials

Resistant materials are woods, metals and plastics that are difficult to work with and will need proper skills and processes and tools. Each material has properties that are considered when design a solution. In this study, problem solving skills and communication skills are developed. The correct use of tools is developed in the making of a product. Safety is very important when working with resistant materials.

2. Working properties

Different materials exhibit different working properties. Listed below are the key properties which determine how materials behave.
conductivity is the ability of a material to conduct heat or electrical energy
strength is the ability of a material to withstand a force without breaking or bending
elasticity is the ability of a material to bend and then to return to its original shape and size
plasticity is the ability of a material to permanently change in shape
malleability is the ability of a material to permanently deform in all directions without cracking
ductility is the ability of a material to deform, usually by stretching along its length
hardness is the ability of a material to resist wear, scratching and indentation
toughness is the ability of a material to withstand blows or sudden shocks without breaking
durability is the ability of a material to withstand wear, especially as a result of weathering
fusibility is the ability of a material to change into a liquid or molten state when heated to its melting point.

Lesson Procedure

Time Section	Teacher Activity	Student Activity	Points to consider
Introduction (5mins)	• Assess prior knowledge on designing products. • Display products made from wood, metal and plastics • Introduce the lesson	• Relate what they know about designing design solutions • Study different products and see the differences in the materials used to produce them • Take note of the lesson	• Design solutions are products, systems, ideas that are an answer to identified problems.
Body (35 mins)	• Teacher gets students into groups and gives direction for the tasks to be completed. • Students in each group study the descriptors to identify the properties of resistant material • Use a table to write the descriptors of each property • Create a portfolio of properties **Group 1.** This group will work on wood. **Group 2.** This group will work on metals **Group 3.** This group will work on plastics • Ask for group presentation. • Ask students to share presentations and create a portfolio of properties of resistant materials.	• Move to assigned groups • Take careful note of tasks as instructed by the teacher. • Work in groups to complete tasks • Do presentation on one resistant material • Obtain copies of other group presentations and create portfolio.	• Properties of resistant materials make them different and have an effect on the designing of products and how those products function.
Conclusion (5mins)	• Ask students to say what they have learnt from the lesson.	• Students share what they have learnt.	

Challenge for students:

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Unit 3: Media and Communication

Sample Lesson: 6

Lesson Title: History of Computers	
Lesson No: 112	
Strand: 3. Basic Technology	Unit: 3 Media and Communication
Topic: Safety	
Content Standard:	**8.3.3. Students will be able to explain the usage of basic digital devices, including computer applications, to design and create solutions.**
Benchmark	**8.3.3.1. Distinguish how digital devices are used by individuals, groups, and organisations for different purposes.**
Key Question:	1. What is a computer? 2. When were computers designed and created? 3. Why were computers created?
Lesson objective (s) :	1. Define a computer 2. Collect information and explain the origin of computers by research. 3. Define generation of computers by research.
Teaching period:	40 minutes
Preparations:	Materials to conduct research Paper, posters, glue scissors
Key concepts(s):	Computers, history of computers, generation of computers, function of computers

Learning content

Knowledge	Skills	Attitudes and Values
• The origin of computers • Generation of computers	• Research and discover the origin of computers • Research and present findings on generation of computers	• Appreciation of the development of technology

Teacher's Notes:

1. Research Skills
   a) Develop research questions
   b) Decide how to conduct research
   c) Set out to find information
   d) Present findings

Lesson Procedure

Time Section	Teacher Activity	Student Activity	Points to consider
Introduction (5mins)	• Assess prior knowledge on personal experiences with computers • Display a picture of personal computer, • Introduce the lesson • Research on computers	• Relate personal experiences with computers • Study picture of personal computer • Take note of lesson and the objectives of the lesson	• What do computers do?
Body (35 mins)	**Activity.** 1. Take students through research skills step by step a) Develop research questions –research history of computers b) decide how to carry out research c) Set out to conduct research d) Present findings- written and oral presentation of findings of research on computers	**Activity.** 1. Students go through a step at a time a) Together with teacher develop research questions b) make a decision on how to carry out the research c) Conduct research d) Present findings- written and oral presentation of findings	What is the history behind computers? What generations of computers are used today?
Conclusion (5mins)	2. Summarizes the research skills done on their finding out of the history of computers.	2. Note summary of research skills done on their finding out of the history of computers.	

Teacher Reflection/Evaluation:

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Suggested Knowledge, Skills, Attitudes, Values (KSAV)

This section guides the teacher to plan and program their lessons. It provides the teachers the key concepts, Knowledge, Skills, Attitudes and Values to develop relevant teaching and learning activities. The KSAV are all linked to the Content standard, Benchmark, Lesson objective and Assessment tasks of each unit in a strand.

Table of Knowledge, Skills, Attitudes, Values (KSAV)
Strand 1: Crop and Livestock Farming

Content standards	**8.1.1.** Students will be able to identify common commodity crops and illustrate their harvesting and processing processes, and examine their economical values.		
Benchmark	**8.1.1.1.** Identify and illustrate the harvesting and processing processes for commodity crops such as coffee, cocoa, and oil palm		
Lesson No.& Title	**Knowledge**	**Skills**	**Attitudes/Value**
1. The influence of cash cropping.	• Effects of supply and demand will determine price. • Economic benefits of cash crops such as coffee, cocoa, palm oil on small holder production • Impact on the lives of people involving in cash cropping.	• Brainstorm and identify the importance of cash cropping. • Discuss and share ideas on the economic benefits • Apply appropriate skills in managing cash crops to have high crop yield to satisfy customers demand.	• Appreciation of the value of cash crops. • Being responsible and show initiative. • Have pride in achievement.
2. Choosing a cash crop.	• Factors to be considered for the choice of a cash crop. • Advantages of growing particular varieties of cash crops. • Calculation of income and expenses involved in growing a particular cash crop.	• Brainstorm, discuss and share ideas about the choices in growing various cash crops such as cocoa, coffee, copra, and palm oil. • Identify and calculate income and expenses involved in growing a particular cash crop.	• Appreciation and value of self-reliance. • Embracement of the economic value of particular crops.
3. Requirements of cash crops	• Requirements include: - The Land - Time, skills and money - Materials - Markets	• Discuss, describe and explain the importance of land, skills and materials required in cultivation. • Calculate the time and estimate cost involved in cultivating cash crops.	• Value commitment and dedication in the achievement of cash crop requirements.
Benchmark	**8.1.1.2.** Analyze harvesting and processing processes of commodity crops and draw appropriate conclusions.		

4. Planning a cash crop project.	• Required facilities, skills and materials • Importance of the facilities, skills and materials	• Discuss and identify required facilities, skills and materials in planning a cash crop project.	• Being open minded, creative and innovative when planning a cash crop project.
5. Let's grow and look after our local cash crops.	• Work and skills required to produce a cash crop.	• Discuss and identify methods and appropriate skills required	• Appreciation of the value of producing local cash crops.
6. Fertilizing and spraying.	• What are chemical fertilizers? • Common fertilizers used in PNG for crop cultivation. • Appropriate time to apply fertilizer	• Define chemical fertilizers. • Identify a variety of chemical fertilizers • State the best times to use chemical fertilizers.	• Acceptance of the availability of chemical fertilizers. • Being considerate of appropriate times when applying fertilizers.
Benchmark	**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.		
7. Harvesting and processing.	• Timing the harvest • Methods of harvesting crops which are ready.	• Calculate appropriate time for harvest. • Identify crops which are ready for harvest. • Describe methods of harvesting and how it can be applied correctly.	• Develop a sense of responsibility. • Respect and appreciation of the value of crops which are ripe or ready for harvest.
8. Weed control--weedicides and herbicides.	• Common weeds • Appropriate methods of weed control using weedicides and herbicides.	• Define weed. • Explain importance of weed control. • Describe methods of weed control.	• Embracement of the appropriate methods of weed control.
9. Pest control-insecticides and pesticides.	• Methods of pest control • Appropriate control measures for dealing with particular pests.	• Identify types of pests that affect plant growth. • Apply proper control measures through the use of insecticides and pesticides.	• Appreciation and acceptance of methods of pest control.
Content standard	**8.1.2.** Students will be able to evaluate the crop management practices and pest control measures associated with quality crop production		
Benchmarks	**8.1.2.1.** Establish and evaluate the different crop management techniques and methods (transplanting, watering, weeding, pruning and thinning) for quality production.		

10. Weeding and mulching.	• Importance of weeding and mulching when cultivating crops. • Appropriate methods of weeding and mulching.	• Discuss and clarify the importance of weeding and mulching in the process of managing a garden. • Identify and use suitable methods of weeding and mulching.	• Show commitment and dedication in the management of crops.
11. Shade, drainage and pruning.	• Importance of shade, drainage and pruning. • Applicable methods of shade, drainage and pruning.	• Clearly state the importance of shade, drainage and pruning. • List some known crops which require shade/ drainage and pruning for their growth.	• Appreciation of the importance of shade, drainage and pruning. • Creative thinking and being considerate of healthy plant growth and crop yield.
12. Pruning and thinning.	• Importance of pruning and thinning. • Applicable methods of pruning and thinning.	• Discuss and list down reasons and the importance of pruning. • Describe the pruning procedure and tools required.	• Appreciation of the required knowledge and correct application of methods.
Benchmark	**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.		
13. Pest and disease and their control.	• Crop pest and disease is a problem in crops. • Recommended methods of controlling pests and diseases are crop rotation, soil solarisation weeding, watering, handpicking and destroying eggs, larvae and adult insects.	• Research and report findings on pest and disease. • Discover and apply appropriate control methods.	• Make informed decisions from learned concepts and confidently apply where necessary.
14. Common pest and diseases.	• Pests which destroy crops are mostly insects. • Diseases are mostly caused by fungi on the plants.	• Discuss, describe and identify common pest and diseases found in plants.	• Appreciation of acquired knowledge and skills.
15. Appropriate pest and disease control measures.	• Biological and manual control measures are organic and safe to use.	• Investigate, analyze and select appropriate safe control measures for pest and disease.	• Appreciation of the importance of acquired knowledge and applies appropriate control measures.
Benchmark	**8.1.2.3.** Examine the methods of controlling pests and diseases. (traditional, artificial, and biological methods), and suggest ways for improving these methods.		
16. Traditional methods of pest control.	• Types of traditional methods: (weeding, watering and drainage.)	• Identify the use of traditional methods of pest control	• Appreciate and value traditional methods of pest control
17. Artificial methods of pest and disease control.	• Types of Artificial methods (Chemical fertilizers, sprays)	• Identify the use of artificial methods of pest control	• Appreciate and value artificial methods of pest control
18. Biological methods of pest control.	• Types of Biological methods. (Organic materials such as plant and animal manure.)	• Identify the use of biological methods of pest control	• Appreciate and value biological methods of pest control

Content standard	**8.1.3.** Students will be able to identify and explain the different livestock project management processes and prerequisite conditions for increasing production and income.		
Benchmark	**8.1.3.1.** Gather information and plan for the type of livestock project to be implemented.		
19-22. Let's plan an integrated object.	• Importance of planning • Factors to be considered when selecting and planning a project.	• Discuss the importance of planning a livestock project. • Apply appropriate management skills when planning and selecting a project.	• Appreciation of the value of the importance of planning. • Be creative and critical thinkers. • Appreciation of the value of opinions and suggestions during planning.
23. Requirements for a livestock project.	• Requirements involved in farming different kinds of livestock. • Resources and facilities.	• Identify and list the requirements and resources which are available and obtainable for the selected livestock project.	• Cooperative learning • Acceptance of being self-reliant, commitment and dedication.
24 - 26. Let's raise chickens (poultry).	• Planning and preparation. • Budget and record keeping are important when raising chickens for profit.	• Discuss and share common ideas of how poultry is done locally. • List advantages of having poultry.	• Appreciation of the economic value of raising chickens. • Care and respect for animals.
Benchmark	**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 prioritize 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.**		
Benchmark	**7.1.5.3.** Discuss the importance of soil formation in relation to the health of plants and how much they can produce.		
27. Resources needed to start a crop and animal project.	• Required resources for a particular crop or livestock project.	• Investigate, discover and select available and obtainable resources through a variety of learning strategies.	• Cooperative learning. • Care and manage resources accordingly.
Benchmark	**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.		
28. Animal housing.	• Importance of animal housing	• Do a research and present findings on a variety of housing or enclosures of particular animals.	• Appreciation of the importance of having proper housing for animals.

29. Animal health.	• Cleanliness • Preventative measures	• Discuss and identify appropriate heath practices when caring for animals.	• Make informed decisions on maintaining cleanliness and care of animals.
30. Importance of animal nutrition.	• Importance of animal nutrition • Types of animal feeds.	• Brainstorm, discuss and distinguish importance of animal nutrition using a variety of strategic activities.	• Appreciation of the importance of animal nutrition which results in quality production.
Content standards	**8.1.4.** Students will be able to explain the different soil management and sustainability practices		
Benchmark	**8.1.4.1.** Identify and classify the different soil management and sustainability practices.		
31.Soil and man	• Importance of soil to man • Positive attitude to agriculture can assist in nurturing the soil. • Appropriate soil management skills	• Discuss the importance of soil. • Apply appropriate soil management skills when cultivating the land.	• Appreciation of the value of the importance of soil to man. • Care and respect for the soil when cultivating the land. • Show initiative.
32. Soil management techniques.	• Importance of soil management techniques. • Types of soil management techniques.	• Research and present findings on the importance and types of soil management techniques.	• Appreciation of the importance of soil management techniques.
33. Legume plants and soil improvements.	• Characteristics of legumes. • Soil improvement using legume plants.	• Discuss, identify and list characteristic of legumes which assist in soil improvement.	• Appreciation of availability of legume plants in relation to soil improvements.
Benchmark	**8.1.4.2.** Evaluate the effectiveness of different soil management and sustainability practices, and propose ways for improving these practices.		
34. Natural methods of soil improvement.	• Natural methods of improving soil	• Identify different natural methods of improving soil	• Appreciate different Natural methods of improving soil
35. Artificial methods of soil improvement.	• Artificial methods of improving soil	• Identify different artificial methods of improving soil	• Appreciate different artificial methods of improving soil
36. Biological methods of soil Improvement.	• Biological methods of improving soil	• Identify different biological methods of improving soil	• Appreciate different biological methods of improving soil
Benchmark	**8.1.4.3.** Use basic research skills to investigate and report on one case or example of soil management and sustainability.		
37-40.Case study-Soil management and sustainability	• Plan a case study on Soil management and sustainability	• Develop a case study on Soil management and sustainability	• Appreciate and value Soil management and sustainability
Content standards	**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		
Benchmark	**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.		
41. Integrated farming methods.	• Variety of integrated farming methods.	• Identify and list farming methods	• Appreciate farming methods
Benchmark	**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.		

42-45. Integrated farming processes.	• Importance of integrated farming processes. • Factors to be considered when selecting and planning a project.	• Brainstorm, identify and list the importance of planning and required processes of an integrated farming project.	• Appreciation of the value of integrated farming processes. • Selective decision.
Benchmark	**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.		
46-49.How to operate a water crash and fish pond project	• An integrated farming project helps to inter-relate land, water, plants and animals. • Economic benefits of integrated farming	• Select, plan and design a fish pond project. • Discuss and list advantages of using land, water and plants as in a fish pond project.	• Self-reliance, commitment and dedication in participation in any related projects.

Strand 2: Business Environment and Practices			
Content standards	**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.		
Benchmark	**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. **8.2.1.4.** Discuss the types of advertising and their benefits to business.		
Lesson No.& Title	**Knowledge**	**Skills**	**Attitudes/Values**
50. What is advertising and who advertises?	• Importance of creating and enabling environment for advertising companies.	• Discuss and list the importance of creating enabling environment for advertising companies.	• Appreciate advertising and importance of creating enabling environment for advertising companies.
51. Methods of Advertising	• Purpose and methods of advertising.	• Discuss the significant methods of advertising to consumers	• Appreciate the different methods of advertising
52. Advertising and consumers	• Advertisements as sales promotion of goods and services	• Explore and discuss the significance of advertising to consumers.	• Appreciate advertising and importance of creating enabling environment for advertising companies.
Benchmark	**8.2.1.2.** Define and discuss examples of insurance, advertising, law, policy, and regulation. **8.2.1.5.** Evaluate the different types of insurance policies available to businesses in terms of their benefits.		
53. What is insurance?	• What is insurance? • Insurance and its benefits.	• Discuss and lists types of insurance policies, laws and regulations.	• Appreciate the benefits of insurance.
54. Compulsory insurance	• Compulsory Insurance policies, laws and regulations.	• Research and report types of compulsory insurance policies, laws and regulation.	• Appreciate compulsory insurance policies, laws and regulations
55. Voluntary insurance	• Types of voluntary Insurance and its benefits.	• Identify and discuss the different types of insurance.	• Appreciate insurance and its importance.
Benchmark	**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		
56. What are Laws in business?	• Business laws • Benefits of having laws in business practices.	• Identify and describe business laws of the government and their benefits.	• Appreciate and value government laws and its benefits in business practices.
57. Government Laws in business	• Government laws and its importance in business practices.	• Identify and describe laws of the government and their importance.	• Appreciate and value government laws and its importance in business practices.
58. Laws to protect consumers	• Know the effects of government laws on consumers.	• Research the types of laws that protect consumers. • Identify the effects of government laws on consumers.	• Appreciate and value the benefits of government laws for business practices and consumers.
Content Standard	**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.		
Benchmark	**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		

Content Standard	**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.		
Benchmark	**8.2.2.1.** Find out and explain how small scale business owners calculate their prices.		
59. What is selling price?	• What is selling price? • Factors affecting the price of goods and services.	• Research and report on how a small scale business calculate its selling price. • Calculate price of specific goods on an informal scale business.	• Accept that selling price of goods and services fluctuate depending on the supply and demand of goods and services.
60. What is freight?	• What is freight? • Types of freight • How freight is calculated and transported.	• Examine and list variety of freight • Explain how certain freight is moved from one place to another.	• Appreciation of and value importance of freight movements and its benefits to businesses and consumers.
61. Calculate selling price with freight	• Selling price of freight varies by distance • How to calculate selling prices of freight.	• Research and report on how small scale business owners calculate selling price of freight. • Calculate the selling price of freight	• Appreciate selling price of different freight variations.
Benchmark	**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.		
62. What is a Mark- up?	• What is Mark- up? • How mark- up is determined by small scale business owners.	• Carry out a mini-research and report on how small scale business owners calculate mark-up in their setting.	• Appreciation of the benefits of Mark-up to small scale business owners.
63. Calculating a mark-up	• Process and strategies of calculating mark-up for goods and services.	• Compare mark-up of different goods and outline the steps of calculating mark. • Calculating mark-up of good services using formula for a selected small scale business activity	• Appreciate importance of Mark-up and its benefits to business operations.
64. Calculating profit	• What is profit? • How profit is calculated • Profit formula	• Discuss how profit is calculated • Calculating mark-up and profit using the formula.	• Appreciate and value the importance of profit making in business sustainability.
65. Documents used to record cash and credit transactions	• Methods of keeping records of cash and credit transactions. • Documents used for recording cash and credit transactions.	• Discuss and list appropriate documents used by small scale business owners for recording cash and credit transactions.	• Appreciate the benefits of business documents in enhancing business operations.

66. Records of cash sales and purchases	• What are cash sales and purchases? • Components of cash sales and purchases • Benefits of keeping records of cash sales and purchases	• Research and report cash sales and purchases records of a selected small scale business activity. • Keep simple records of cash sales and purchases.	• Appreciate and value the benefits of keeping records of cash sales and purchases.
67. Records of credit sales and purchases	• What are credit sales and purchases • Records of credit sales and purchases.	• Identify and list types of records used for keeping credit sales and purchases. • Calculate credit sales and purchases of selected goods • Keep simple records of credit sales and purchases	• Appreciate the importance of keeping records credit sales and purchases of any business activity.
Content Standard	**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.		
Benchmark	**8.2.3.1.** Identify and explain the different types of communication services provided by private business companies to assist business operations.		
68. Private communication service companies	• Different types of private communication companies and how they operate	• Identify and list the different types of communication services. • Discuss services provided and describe its benefits to business operations.	• Acknowledge and appreciate different types of communication companies
69. Types of Services provided	• Services provided by private communication services	• Discuss types of communication services provided by selected private business companies. • List how these communication services assist business operations.	• Acknowledgement and appreciation of communication services in enhancing business operations.
70-73. Case Study Digicel and B Mobile	• Understand how communication services such as Digicel and B Mobile operate.	• Discuss the different types of Communication Services provided and how they operate	• Acknowledge and appreciate the different types of communication services provided by Digicel and 'B Mobile companies.
Benchmark	**8.2.3.2.** Examine the impact of the communication services provided by private communications companies on the success of business operations.		

74. Impacts on the success of business	• The impacts of communication services provided by private companies.	• Explore and describe the impacts of private communication services on the success of business operations. • Compare and contrast impacts of private communication services towards the success of business operations.	• Acknowledge, appreciate and value the impacts of private communication services.
75. Benefits of private communication companies to other business and consumers	• Benefits of private communication companies to other business and consumers	• Explore and describe the benefits of private communication services to other businesses and consumers • Write a report on the benefits of selected private communication service.	• Acknowledge and value the benefits of private communication services.
76. How private communication companies benefit from its own success and failures	• The success and failures of private communication services. • How private communication companies benefit from their own success and failures.	• Carry out a research on a selected private communication company. • Write a brief report on its successes and failures.	• Acknowledge and accept the success and failures of private communication services.
Benchmark	**8.2.3.3.** Use basic research skills to investigate a case relating to how a private communicates company provides communication services to a business, draw appropriate conclusions, and suggest ways for improvement.		
77 .New Technologies	• New technologies promote effective communication.	• Identify and discuss new technologies that promote effective communication.	• Acknowledge, appreciate and value new technologies.
78. How new technologies promote business communication	• How to promotes effective business communication	• Examine a variety of effective business communication promotion methods • List their contributions towards business communication	• Acknowledge, appreciate and value new technologies that promote effective communication
79. Case study- Proposal writing	• Components of proposal writing • Success and failures in communication service operations and the need for improvement.	• Discuss and explore ways of improving communication services • Develop a proposal on ways for improvement on communication services	• Acknowledge and value proposal writing as a strategy for improvement in the success and failure of any business activity.
80. Questionaires development	• Questionnaire development guidelines	• Plan, design and develop research questionnaires.	• Acknowledge and value questions based on the success/failure on such private communication companies

81. Find out who will be the participants	• Participants for the` research.	• List right participants in the research.	• Acknowledge, appreciate and value participants in the research.
82-85. Case Study on how private Communication Companies provide services	• Research and procedures and strategies	• Carry out the research and analyze the data. • Write a report based on the case study.	• Acknowledge the benefits of private communication services towards business operations

Strand 3: Basic Technology			
Content standards	**88.3.1.** Students will be able to explain basic technology and examine its impact on societies.		
Benchmark	**8.3.1.1.** Explain basic technology and examine its impact in societies.		
Lesson No.& Title	**Knowledge**	**Skills**	**Attitudes/Values**
86-87. Technology and its impact on society	• Importance of technology and its advantages in today's society • Tools and building equipment • Digital devices and consumables.	• Do an analysis on the use of different household appliances and equipment. • Make an evaluation on the effectiveness of different technologies • - Digital • - Tools • - Electrical appliances.	• Value use of technology in making things.
Benchmark	**8.3.1.2.** Identify products produced using basic technology and evaluate them in terms of their quality, durability, and meeting on society needs. **8.3.1.3.** Examine the operations of businesses that use basic wood, metal, and plastic technology to produce their products and how they have benefited societies.		
88. Basic tools and what they are used for	• Appropriate application of tools and equipment. • Workshop construction • Bench tools • Cutting tools • Hammer / saw / drills • Machines	• Identify tools and materials used in the store room. • Explore a range of tools and select the most appropriate for a specific purpose.	• Appreciate basic tools and their use
89-90. Basic tools and how to care for them	• Tools need to be cleaned after use and stored in a safe place. • List of various workshop rules and procedures	• State the importance for caring for the workshop	• Appreciate how to care for tools
Content Standard	**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.		
Benchmark	**8.3.2.1.** List and compare the properties of wood, metals, and plastics. **8.3.2.2.** Categorize and compare products made from wood, metals, and plastics in terms of their quality, durability, affordability, marketability, and in meeting consumer needs.		
91-92. Properties of wood, metal, and plastics.	• Properties of metal. Metals contain more than one property - Steel is very strong - Copper can bend or stretch easily - Plastics can melt in contact with high heat.	• Identify and select appropriate materials for a specific purpose • Classify the materials selected according to their properties	• Value the use of resistance materials as a source of resource used in making products.
93. Preparing metals, plastic and wood for use	• Tools for cutting, and smoothing a rough surface.	• Identify tools used in making a wooden pencil case. • Select appropriate tools and material to construct a wooden pencil case	• Value resistance materials as sources used for making products.

Benchmark	**8.3.2.3.** Apply the design process to create a product that meets a particular need using appropriate basic tools.		
94. Designs in existing products	• Principles and elements in design products such as: - furniture - clothing - metal products - stoves, - barbeque plates	• Identify elements and principles of design in made products. • Investigate a range of resistant products and report on elements and principles of design on these items.	• Value and appreciate the creativity of designers of made products.
95 & 96. Production processes (Stages)	• Long term and short term projects using wood, metal and plastic.	• Devise a range of strategies, actions and steps in constructing a project of their choice. • Apply specific skills and techniques constructing the design product selected.	• Appreciate their ability to apply and use learned techniques in creating and designing products.
Content Standard	**8.3.3.** Students will be able to examine home design and decorations and the basics of cookery and textiles.		
Benchmark	**8.3.3.1.** Define and explain various aspects of home design and interior decorations.		
97. Aspects of decorating a home	• Design features are important considerations in the choice of materials and arranging room design	• Investigate a range of ideas in home room decoration	• Appreciate creativity ideas in home decoration
98. How to decorate a particular room in a home	• Decorate a home room	• Investigate decoration ideas and apply it in decorating a home room.	• Value the use of creative ideas that brings joy and satisfaction in home decorations.
99. Make a product solution	• Make a home room decoration product	• Design a home room decoration using the design processing skills of planning, designing and creating a product. • For example wall hanging /shells curtain divider	• Value individual talents and abilities in creating a design product
100. Evaluate the finished product.	• Evaluate the appropriateness of the finished product.	• Evaluate and make judgments on the use techniques and skills and the quality of the finished product and suggest ways to improve the product design.	• Value and appreciate the skills and knowledge applied in the product construction.

Benchmark	**8.3.3.2.** Analyze 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.		
101. Creating a recipe for a food product.	• Planning and designing a food product - Ingredients - Methods - Utensils - Resources	• Explore different parts of a recipe and select a recipe. Modify the recipe to suit a specific meal for a specific occasion.	• Value recipes as a guide for meal plans.
102. Modifying recipes.	• Modifying recipes for specific needs.	• Discuss reasons for modifying recipes and substituting ingredients and its benefits for different meal plans, need and occasions.	• Value and appreciate economical use of resources'.
Benchmark	**8.3.3.4.** Research the processes involved in producing fabrics and transforming them to meet consumer needs		
103. Household fabric items.	• Household fabric items - Curtains - Tablecloths - Bed linen - Towels etc….	• Explore household fabric items and apply basic technological skills to produce a household fabric item.	• Value and appreciate the use of fabric items in a home.
104. Types of fibre and common fabrics.	• What is fibre? • Common fabric brands and labels. - Rayon - Polyester - Nylon - silk	• Explore, collect and analysis samples of different fabrics according to their strengths and properties	• Appreciate the use of fabric as valuable personal clothing and house hold fabric items.

Content Standard	**8.3.4.** Students will be able to explain how homes are designed and organized, food is prepared and served, and basic garments are made.		
Benchmark	**8.3.4.1.** Explain the process of designing, organizing and decorating a home. **8.3.4.5.** Explain and evaluate the process of making garments and suggest ways of improving it to allow for innovation		
105. Aspects of decorating a home.	• Design features are important considerations in the choice of materials and arranging room design	• Investigate a range of ideas in home room decoration	• Appreciate creativity ideas in home decoration
106. How to decorate a particular room in a home.	• Decorate a home room	• Investigate decoration ideas and apply it in decorating a home room.	• Value the use of creative ideas that brings joy and satisfaction in • Take pride in organising a home, or work station that is pleasing and attractive.
Benchmark	**8.3.4.2.** Examine the importance of resources such as time and equipment in planning and implementing household tasks.		
107. Resources and time management in the home.	• Resources used in the Home • Time management for household chores.	• Identify household resources and chores and discuss how time can be planned and utilized wisely for maximum output for each activity.	• Appreciate the economical use of time and resources.
Benchmark	**8.3.4.3.** Discuss the processes for planning, preparing, and serving food.		
108. Cooking and cooking methods.	• Cooking and cooking methods - Moist heat cooking - Dry heat cooking	• Investigate cooking and cooking methods and classify them into moist and dry heat cooking.	• Value and appreciate that foods cooked in different ways are more appealing than using only one method.
109. Basic cooking methods and cooking equipment.	• Specific cooking method for recipe selected.	• Apply the basic cooking methods to produce a food product as selected.	• Value foods cooked using a variety of cooking methods.
110. Table setting and serving.	• Table Setting guide and procedures • Proper and correct ways of table setting and food serving - Family meals - Special events and occasions - Birthday party - Graduation.	• Explore table setting guides and procedures and identify specific settings for specific purposes. • Illustrate a sample layout of a desired type of table setting. • Plan a meal and do practical table setting and serving.	• Appreciate order and proper organization of table setting
Benchmark	**8.3.4.4.** Recognize and demonstrate basic table manners and safe food and cutlery handling practices.		
111. Table manners, handling and storage of cutlery.	• Table manners and handling and storage of cutlery. • Meals are important family and social occasions • Applying table manners makes meal times pleasant and enjoyable	• Explore and examine practices applied in the home relating to the use of table manners and analysis its effectiveness	• Appreciate and value table manners.

Content Standard	**8.3.5.** Students will be able to explain the usage of basic digital devices, including computer applications to design and create solutions.		
Benchmark	**8.3.5.1.** Distinguish how digital devices are used by individuals, groups, and organizations for different purposes.		
112. History of computers.	• The origin of computers • Generation of computers • How computers and computer software were invented	• Research and discover the origin of computers • Research and present findings on generation of computers • Do a research and present their findings on the history of the development of computers	• Appreciation of the development of technology
113. What is digital media and its uses.	• What is digital media? • The uses of digital media by individuals, group and organisations	• Discus digital devices and their uses	• Value digital devices
Benchmark	**8.3.5.2.** Classify the various types of digital devices such as computers according to physical size, functionality, and purposes.		
114. Types of computers.	• Personal Computer • Workstation • Mini computer • Main frame • Super computer • Laptop and smartphone computers.	• Discuss the different types of computers • Classification of computers according to size and power.	• Value technology in the development of different types of computers
115. Characteristics of a computer.	• key characteristics of a computer - Speed, accuracy, diligence, storage capability and versatility.	• Identify and discuss the characteristics of a computer.	• Appreciation the advancement of the computers.
Benchmark	**8.3.5.3.** Identify and use basic digital devices such as basic computer applications to create solutions.		

119. Computer applications	• System software • Application Software	• Explain software • Differentiate the difference between system and application software	• Appreciation and value of understanding system and application software • Explore and value creativity through product design
Benchmark	**8.3.6.2.** Evaluate the use of ICT to create and communicate basic solutions, and create products such as photographs and designs.		
120. Create product using computer applications.	• Create a word document or PowerPoint or publisher presentation, • Create a picture with using clip art	• Observe applications of word and PowerPoint done by teacher • Practice word and Power point ,Publisher application and clip art using the design process.	• Appreciate and value creating products using the design process • Explore and value creativity through product design
121. Modes of presentation.	• Print • Audio • Visual projection	• Observe presentations done by teacher • Practice modes of presentation • Do a presentation.	• Explore and value creativity through product design.
Benchmark	**8.3.6.3.** Examine basic ethics when using digital devices and digital applications in ICT, communication and problem solving.		
122. How to ethically use applications.	• Technology Code of Conduct - appropriate uses of computer-based technologies - uses computer netiquette - computer netiquette when interacting on social networks - copyright laws - uses network services in a considerate and responsible manner.	• List ethical practices when using computers • Explain each ethical practice with the consequences.	• Appreciate and value ethical practices when using computers • Demonstrate tolerance for the understanding of ethical practices.

Assessment, Recording and Reporting

Assessment and reporting is an integral part of the delivery of any curriculum used in the schools. A well planned curriculum must have equally planned and developed assessment procedures. Standards based Curriculum (SBC) assessment encourages the use of bench marks and commended types of assessment that promote standards for a range of purposes. Assessment and reporting is for:

- Improving learning- Parents and guardians are well informed about the students' performance- what they learn, think, make and do;
- Maintaining a two way communication: student and teacher, school and parents;
- Communicating and reporting on students learning; and
- Use a common language and good strategies for communicating and reporting students learning.

What is an effective assessment practice?

Effective and informative assessment practice has the following attributes. It is:

- balanced
- comprehensive
- valid

Assessment is the process of identifying, gathering and interpreting information about students' learning. It is purposely done to provide information on student's achievement and progress. It directs teachers in ongoing teaching and learning. Effective and meaningful assessment must be maintained at all times. The content standards stated in the expected curriculum for this grade are prescribed by units and sets the basis for planning and conducting on-going assessment. Ongoing classroom assessment is done to:

- support student learning;
- monitor student learning;
- diagnose student learning needs;
- evaluate teaching program; and
- inform student reporting process

Benchmarks

Benchmarks provide content standards more specific statements at each grade level to facilitate integration into the curriculum.
Benchmarks are specifications of content standards or more detailed descriptions of a specific level of student performance expected of students at particular ages, grades, or levels of development.

Benchmarks set the basis of the expectations in achieving content standards at particular ages, grades, or levels of development which in our case benchmarks set the basis of the expectations in achieving content standards at particular grades. It draw from the existing content standards the knowledge, skills values and attitudes a learner must achieve. It qualifies students to progress on to the next grade.

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. For example the content standard stated below has a number of benchmarks or more detailed descriptions or more specific statements expected of students at that particular grade which all students are expected to learn, master and demonstrate competency using various representations in real life situation.

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 yielding 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.

Assessment in Making a Living

Making a Living is an activity-project oriented subject where students will be performing various activities in practical form. There will be more practical lessons taught then theory lessons. Students will be assessed by their practical involvement in group activities and finished products they create. This section will outline samples of assessment done during making living lessons.

Types of Assessment Strategies and Methods

Teachers are encouraged to use two or more types of assessment when assessing students learning. SBC specifically promotes three types of assessment. These are assessment;

- *for* learning
- *as* learning and
- *of* learning

Assessment for Learning

Assessment for learning is assessment which takes place during the course of teaching. It is an on-going assessment and asks the question 'where are you in the learning of this unit?'. It is used mainly to inform teachers on how much and how well teaching and learning program has been delivered and received. It is also known as formative assessment.

This assessment type helps teachers to identify students' strength and weakness areas in the content learned. For example: In a week's teaching of the unit,' Animals' the assessment task on how different animals reproduce their young revealed that most students lack knowledge of how reptiles and birds reproduce their young. This evidence will assist teachers to plan effective remedial and re-teaching lessons to improve weakness area/s identified in students immediately.

Assessment *as* and *in* Learning

Assessment as learning means that children are involved in assessing their own work and the work of other children in the class. For example, if a teachers learning objective is to use adjectives to make a sentences more interesting a child will read out a sentence and the other will assess it. They might have to say which words are adjectives and whether they think they make the sentence interesting

Assessment *of* learning

Summative assessment is assessment that takes place at the end of a unit of study, a term, year or a program. It is used to provide information on student achievements and effectiveness of the content engaged in. This type of assessment asks the question; 'What did you learn?' For example: The class teacher may want to evaluate his or her teaching in term 1 on animal reproduction, so asks the students,' what did you learn about animal reproduction in term1? The teacher can then use the students' responses to plan for revisit and revision on particular content areas in preparation for the new content to be learned.

Teachers need to apply processes for assessment. Recording and reporting enables them to determine which content standards and benchmarks students have achieved and to report these achievements to parents in ways that make sense to them. The students' knowledge and skills are continually developing in a healthy classroom environment. It is important for teachers to be aware of

and record, what the students know and what they can do. When teachers have this information, programming can be made purposeful. It can be directed at the learning weakness and matches the student's needs.

Assessment Strategies

Assessment strategies are used to conduct or deliver the assessment tasks planned for the students. There are many options available for teachers to choose from. The few listed below are recommended for all the teachers to use to assess students. These include:

- Observations
- Portfolios
- Tests and
- Self and peer assessment

1. Observation

To observe is to look and listen carefully to a student or students to make an assessment of and about what they know, understand and can do. The teachers while listening and looking can ask questions and look at or observe how the student/s can work as a group or an individual to complete a task. The teacher should do this to gather information about students:

- Ability to work alone or in a group;
- Understanding of the content of the learning task;
- Way of thinking how;
- Leadership behavior; and
- Interaction with each other.

This strategy is very suitable for peer assessing. Students can be tasked to observe a friend and later report what they saw.

2. Portfolios - Studying Work Samples

The teacher thinks about and examines work samples from students. Work samples can be written tasks on paper, small chalkboards or slates, worksheets, drawing or models. Studying work samples helps the teachers to assess:

- the students level of knowledge and understanding of the learning taking place;
- students thinking skills and their ability to present their own ideas and be creative;
- how much time and effort the students used to do the assigned tasks;
- the skills the students used to produce the work; and
- if the work meets the result of the content standard.

3. Test

Test is an assessment strategy used to assess student performances of their learning formatively or summative. Class teachers prepare these tests with careful considerations of;

- the knowledge and skills to assess the students on;
- the language level to be used;
- the construction of questions – clear and precise;
- the content of the intended part of the curriculum content;
- how much each question is worth; and
- how to award marks the questions.

4. Self and Peer Assessment

In peer assessment organized structure is partner work. Each student performs a skill and the other acts as the observer. They change places when they complete their task. The observer records the partner's performance on an agreed checklist or recording journal. The recoding of each other's performance is recorded and reported against an agreed set of criteria.

Assessment Tasks

It is important to plan assessment for the whole year using the content overview and the yearly or term plans. Assessment tasks form the basis of the assessment processes, of assessing each learner in relation to the content standards.
Assessment tasks are learning activities created from the benchmarks. These are written and specifically designed and planned before administering. This particular activity has key knowledge, skills, attitudes and values that must be achieved at the end of performing the assessable tasks.

Assessment Plan

To plan assessment tasks, teachers must decide which type of assessment methods will be used to demonstrate the achievement of the content standard. Content standards are the starting points in the process of identifying and planning assessment tasks.

Learning activities and assessment tasks must be planned before delivery.
In the process of writing and planning an assessment task, the following are some points that you may consider:

- choose assessment methods suitable for the assessment task
- develop assessment criteria by breaking down the knowledge, skills, attitudes and values that the students will need to demonstrate to complete the activity successfully
- consulting Bloom's Taxonomy as per the students cognitive levels

Teachers are the best assessors of the students and must ensure that all assessment tasks are:

- clearly stated in language students can interpret;
- link to the content standards;
- balanced, comprehensive, reliable and fair; and
- engages the learner.

According to the suggested grade three content overview and yearly plan, a suggested yearly assessment plan for assessment tasks has been planned and placed according to the number of teaching weeks in the school year.

Grade Eight Yearly Assessment Overview

This is an assessment task overview planned for teachers in grade eight for the year. These suggested assessment tasks are given as examples you can use but if you feel that you can use these as guide to write up your own for your classes then that is also encouraged.

The assessment tasks are written from the listed benchmarks stated for each content standard. Assessment tasks prescribed in the syllabus are interpreted into specific assessment tasks described in the table below for the year. You are given the flexibility to formulate your own assessment tasks if you are not comfortable with the suggested specific assessment tasks.

Grade 8 Suggested Assessment Tasks outline

Week	Strand	Unit	Content Standard	Benchmarks	Suggested Specific Assessment Tasks
Term 1					
2	Crop and Livestock farming	Crop farming	**8.1.1**	**8.1.1.1**	Conduct a research on different stages of processing of a selected commodity crop and present findings.
3	Crop and Livestock farming	Crop farming	**8.1.1**	**8.1.1.2**	Construct a poster on the factors affecting yield of crops.
4	Crop and Livestock farming	Crop farming	**8.1.1**	**8.1.1.3** **8.1.1.4**	Research and make presentation on local crop production practices.
5	Crop and Livestock farming	Livestock farming	**8.1.2**	**8.1.2.1**	Produce a small chicken project to suit local conditions.
6	Crop and Livestock farming	Livestock farming	**8.1.2**	**8.1.2.2**	Use a selected criteria to assess the effectiveness of the project
7	Crop and Livestock farming	Livestock farming	**8.1.2**	**8.1.2.3**	Construct a small animal project to suit local conditions
8	Crop and Livestock farming	Land and water resource management	**8.1.3**	**8.1.3.1**	Planning an integrated object
9	Crop and Livestock farming	Land and water resource management	**8.1.3**	**8.1.3.1**	Poultry project
10	Crop and Livestock farming	Land and water resource management	**8.1.3**	**8.1.3.2** **8.1.3.3** **8.1.3.4**	List the types of integrated farming operating in PNG

Week	Strand	Unit	Content Standard	Benchmarks	Suggested Specific Assessment Tasks
Term 2					
2	Crop and Livestock farming	Land and water resource management	**8.1.4**	**8.1.4.1**	Outline an integrated farming method and explain its practice
3	Crop and Livestock farming	Land and water resource management	**8.1.4**	**8.1.4.2**	Implement a mini-integrated farming project
4	Business environment and practices	Land and water resource manage-ment	**8.1.4**	**8.1.4.3**	Case study-Soil management and sustainability
5	Business environment and practices	Land and water resource manage-ment	**8.1.5**	**8.1.5.1** **8.1.5..2**	Integrated farming processes
6	Business environment and practices	Land and water resource manage-ment	**8.1.5**	**8.1.5.3**	Water crass and fish pond project
7	Business environment and practices	Satisfying needs and wants	**8.2.1**	**8.2.1.1** **8.2.1.4**	In a few words, explain the importance of advertising in business
8	Business environment and practices	Satisfying needs and wants	**8.2.1**	**8.2.1.2** **8.2.1.5**	In a few words, explain the importance of insurance in business
9	Business environment and practices	Satisfying needs and wants	**8.2.1**	**8.2.1.6**	In a few words, explain the importance of having government laws in business
10	Business environment and practices	Start a business and record keeping	**8.2.2**	**8.2.2.1**	Calculate mark-up and selling prices for a given set of goods

Week	Strand	Unit	Content Standard	Benchmarks	Suggested Specific Assessment Tasks
Term 3					
2	Business environment and practices	Start a business and record keeping	**8.2.2**	**8.2.2.2**	Name common documents used in record keeping for a retailer.
3	Basic Technology	Start a business and record keeping	**8.2.2**	**8.2.2.3**	Discuss how retailers record cash and credit sales and purchases.
4	Basic Technology	Business communication services	**8.2.3**	**8.2.3.1**	Name the different types of services offered by the private communication service companies.
5	Basic Technology	Business communication services	**8.2.3**	**8.2.3.1**	Case Study Digicel and Mobile
6	Basic Technology	Business communication services	**8.2.3**	**8.2.3.2**	Write in one paragraph, how privatecommunication services companies contribute to the success of businesses.
7	Basic Technology	Business communication services	**8.2.3**	**8.2.3.3**	Discuss private communication service companies as a means of communication services for businesses.
8	Basic Technology	Business communication services	**8.2.3**	**8.2.3.3**	Discuss private company's communication service contributions to the success of business operations.
9	Basic Technology	Business communication services	**8.2.3**	**8.2.3.3**	Case Study on how a private communication companies provide services
10	Basic Technology	Introduction to Resistant Materials	**8.3.1**	**8.3.1.1** **8.3.1.2** **8.3.1.3**	Identify and name some impact of technology in societies

Week	Strand	Unit	Content Standard	Benchmarks	Suggested Specific Assessment Tasks
Term 4					
2	Basic Technology	Introduction to resistant materials	**8.3.2**	**8.3.2.1 - 8.3.2.3**	Explain designs in existing products Name the basic tools and their uses.
3	Basic Technology	Home management	**8.3.3**	**8.3.3.1**	Produce a sample home decoration
4	Basic Technology	Home management	**8.3.3**	**8.3.3.2**	Write a recipe Identify sources of fibres from a given fabric.
5	Basic Technology	Home management	**8.3.4**	**8.3.4.1** **8.3.4.2** **8.3.4.5**	Name the skills in decorating a home
6	Basic Technology	Home management	**8.3.4**	**8.3.4.3** **8.3.4.4**	Demonstrate the steps of pre-paring, serving food using basic table manners and safe handling of cutlery Sew a garment using commercial patterns
7	Basic Technology	Media and communication	**8.3.5**	**8.3.5.2**	Classify the different types of computers according to physical size, functionality and purpose
8	Basic Technology	Media and communication	**8.3.5**	**8.3.5.3**	Identify the advantages and disadvantages of ICT
9	Basic Technology	Media and communication	**8.3.6**	**8.3.6.1** **8.3.6.2**	Apply ICT to create basic solutions and demonstrate these in presentations
10	Basic Technology	Media and communication	**8.3.6**	**8.3.6.3**	display basic ethics when using digital devices and digital applications in the media

Sample Assessment Plan

There are different ways to plan assessment tasks and teachers have used them in classrooms .These sample assessment tasks are given as examples for teachers to use and plan their own to suit the context and the learning needs of the grade seven students in the classroom. The sample plans here are very explicit and directs the teacher to the content of learning given in the syllabus. Teachers will need to:

- identify valid and reliable assessment tasks from the learning activities
- develop specific assessment criteria that describe exactly what a student must do to be successful in the assessment task
- make sure the students are aware of and understand the assessment criteria and
- give students feedback on their performances in each assessment task against the criteria.

Sample Assessment - Task 1

Example of Assessment Task

Context

A computer has been purchased for the school. The school administration had made a decision to place the computer in a newly built room. The room needs to be designed in order for the computer to be placed there for students to use. The room is not secured and is bare. The room must be designed well for the computer to be placed in the room and must be secured.

Task

Design a floor plan of the room so it can be constructed for the newly purchased computer to be placed in it. Investigate the needs of the room for the computer to be securely placed in the newly built room. Create a folio outlining every process decisions made to create a solution.

Specification

- The room must have good lighting and ventilation;
- The room must have a good power supply;
- The room must have secured doors, one should be an emergency door;
- The room must have curtains or blinds to control the lighting in the room;
- There must be storage items, seating and table set for the placing of the computer;
- There must be adequate space for movement.

Follow the design process to complete the task.

- Investigating;
- Planning;
- Making;
- Evaluating;and
- Marketing (will not be done).

Marks are given to each set of criteria as shown in the assessment rubric shown below to measure individual student's mastery or competency level of the essential knowledge, skills; values and attitudes for the given benchmark.

Sample scale for the assessment criteria used in Sample Assessment - Task 1

Assessment Method

Assessment Rubric

Levels of Competence					
Criteria	**Excellent**	**Competent**	**Developing**	**Not Yet Mastering**	**Progressing**
	5	**4**	**3**	**2**	**1**
Generate and develop design ideas	Uses drawings reflectively to generate new ideas reflectively to generate new ideas	Progression of ideas across or within drawings	Design ideas are generated but not developed	Simple sketch showing object to be made	Drawing a picture not designing a product
Address the constraints of the problem/ need	Task constraints treated as part of operative process	Task constraints considered as the design proceeds	Records way to address task and/or client needs	Drawings shows some understanding of task constraints	Minimal understanding of task/user needs
Plan the look of the product	Ideas about finishing develop within overall designing	Ideas about finishing are added to design whilst drawing	Overall decoration scheme considered	Little consideration of final appearance of product	Appearance of the product is not considered
Communicate design ideas	Clear enough for somebody else to make the product	Conveys sense of the object to be made, e.g. working diagram	Conveys some sense of the object to be made, e.g. indicates materials	Simple unlabeled sketch(es); relying on shared meanings	Use of narrative or other drawing type
Evaluate while drawing	Changes made a result of considering design drawings	Decisions made about product whilst drawing	Considered and rejected a range of ideas	Minimal evaluation at drawing phase	Yet to define the design task
Comments to improve the learners performance in design capability:					

Teachers can use the benchmark proficiency level table below to give individual student's mastery or competency level of the essential knowledge, skills; values and attitudes identified in each benchmark

Proficiency levels			
Grade	**% Mark**	**Achievement Level**	**Explanation**
A	Above 85%	Very High Achievement (VHA)	A grade indicating excellent achievement in the assessment task. The student has an extensive knowledge and understanding of the benchmark and can readily apply this knowledge. In addition, the student has achieved a high level of competence in the processes and skills of the benchmark and can apply these skills to new situations.
B	70 - 84%	High Achievement (HA)	A grade indicating a high level of achievement in the assessment task. The student has a thorough knowledge and understanding of the benchmark and competence in the processes and skills. In addition, the student is able to apply their knowledge and skills to most new situations.
C	50 - 69%	Satisfactory Achievement (SA)	A grade indicating substantial achievement in the assessment task. The student has demonstrated attainment of the main knowledge and skills of the subject and has achieved a sound level of competence in the processes and skills of the benchmark
D	20 – 49%	Low Achievement (LA)	A grade indicating satisfactory achievement in the assessment task. The student has demonstrated an acceptable level of knowledge and understanding of the content and has achieved a basic level of competence in the processes and skills of the benchmark.
E	0 - 19%	Below Minimum Standard (BMS)	A grade indicating elementary achievement in the assessment task. The student has an elementary knowledge and understanding of the content and has achieved limited competence in some of the processes and skills of the benchmark.

Recording & Reporting Method

Sample recording strategy for the assessment task identified from the sample assessment task 1

Name	CRITERIA					
	Generate and develop design ideas	**Address the constraints of the problem/ need**	**Plan the look of the product**	**Communicate design ideas**	**Evaluate while drawing**	Total Marks
John	**4**	**2**	**5**	**3**	**4**	
Mary						
Luke						
Lyneth						
Renae						
Douglas						

Sample Assessment - Task 2

Example of Assessment Task
Task: Create a poster to display 4 safety symbols and their meanings used in a workshop

Criteria

1. Correct name of safety symbol
2. Correct meaning of safety symbols
3. Correct colour coding used for safety symbol
4. Creativity in producing the poster

Marks are given to each set of criteria as shown in the assessment rubric shown below to measure individual student's mastery or competency level of the essential knowledge, skills; values and attitudes for the given benchmark.

Sample scale for the assessment criteria used in Sample Assessment - Task 2

Assessment Method
Assessment Rubric

Criteria	Excellent work done.	Work done according to the criteria	Average work done	Poor work done	Very Poor work done
	5	4	3	2	1
Name of safety symbol	Each safety symbol is correctly named	One safety symbol is not named correctly	Two safety symbols are not named correctly	safety symbols are not named correctly	All safety symbols are not named
Meanings of safety symbols	The meanings of safety symbols are exact	The meanings of safety symbols are correct with one not done correctly	The meanings of safety symbols are correct with two not done correctly	The meanings of safety symbols not done correctly.	The meanings of safety symbols are not done
Colour coding used for safety symbol	The correct colour coding is used for each safety symbol	Colour is used but one safety symbol is not represented well with the correct colour.	Colour is used but one safety symbol is not represented well with the correct colour.	Colour is used but three symbols are not represented well with the correct colour.	No correct Colour is used and no safety symbol is represented with the correct colour.
Creativity in producing the poster	Creativity is evident, in the designing of the poster, layout of poster and, printing of words are excellent	Creativity is shown in the pictures and illustrations , order and layout and printing of words are done	There is creativity in pictures and illustrations , order and layout and printing of words are average	a little ev-idence of creativity in pictures and illustrations , no order and layout and printing of words	no evidence of creativity in pictures and illustrations , order and layout and printing of words are not done
Total					

Recording & Reporting Method

Sample recording strategy for the assessment task identified from the sample assessment task 2

	Name of safety symbol	Meanings of safety symbols	Color coding used for safety symbol	Creativity in producing the poster	Total Marks
Clemencia	4	2	5	3	4
Annie					
Dianah					
Dalvice					
Wendy					
Nathaniel					

Recording and Reporting

The recording and reporting of student achievements in the classroom is very important. Teachers use a range of tasks to ensure that commended benchmarks are equally assessed and reported. This helps the teachers to reflect the effectiveness of their teachings.

Teachers should keep almost accurate records of how well the students achieved the knowledge, skills, attitudes and values in the content standards or specifically in the benchmarks in grade six.

Making a Living subject recording

Teachers can record the evidence of students' demonstrations of achieving the content standard statements, using assessment instruments that are manageable. Here are some recommended recording methods;

- individual or class checklist, or class grid to record observations;
- comments on students' work indicating what they have done well and where they need to improve;
- work samples being added to a portfolio;
- test marks;
- students' assessments of their own performance using the assessment criteria; and
- students' assessment of their peers using the assessment criteria.

Students are given constructive feedback by the teacher on what they can do well and what they need to do to improve. Likewise, teachers are focus on the content they are assessing and are able to apply fair and consistent assessment.

Reporting

Reporting is important in assessment and must be done effectively. Teachers should report what students have done well and how they can improve further. Formal reporting through written reports and interviews are done to inform

parents and guardians of the students learning progress and other related areas such as behaviors. Teachers must ensure that the student has demonstrated and achieved the content standards independently on a number of occasions. These can be done formally or informally.

The achievements are reported to the respective stakeholders in relation to;

- weaknesses
- strengths
- parent and guardian support and
- evaluation of content of learning.

Recording and Reporting Strategies

The types of strategies teachers may want to use in recording student achievements must be interpreted well to the expected audience.

Students must be informed of their achievements in the assessment tasks they participated in. They feel responsible for their own learning and can be assisted to identify their weak areas in the task. This experience will enable them to take up the challenge to improve on their own weaknesses.

Samples of recording and reporting templates

Keeping informed records of student performances on formal recording tools is very important both for the student, guardians, parents and teachers of the next grade level. Some recording tools are shown below as samples for teachers to use apart from those currently used in the classroom. These are:

Sample Anecdotal Notes – Class Grid

- record the dates of assessment tasks;
- write comments on the performance observed as per the criteria given;
- one box is for a student; and
- this same grid can be used for a term depending on the type and number of assessment tasks prepared

Making a Living - A General Checklist for Practical Projects

Class: ☐ **Grade:** ☐ **Date: 9/06/18** **Week: 2, 4, 6** **Year:----------**

Scoring: 3: above developmental level **2 : at developmental level** **1: below developmental level**

	Digging and mulching			Watering			Weeding		
Student Names									
John									
Luke									
Paul									
Joe									
Susan									

Note: Teachers can identify attitudes displayed by each student through correct application of wedding, mulching and watering plant.

Evaluation

Evaluation is the process in which teachers will use assessment information to make judgments about the effectiveness of their teaching, learning and assessment programs.

This information can also be used by teachers to evaluate the effectiveness and the quality of physical education lessons taught throughout the year. Similarly, a whole school can analyse results of the subject by strands and standard statements or by grades, and identify areas of strengths and weaknesses. For example, if a whole school is not performing well in Making a Living then Making a Living could become the focus for school based in-service and resource development for the next year. In this way, assessment information serves three purposes;

- to improve students' learning;
- to improve the quality of teaching; and
- to improve the content.

There are several ways to conduct evaluation and therefore, teachers are encouraged to utilize appropriate methods to do their evaluations.

Glossary

Making a Living subject has words specific to teaching and learning Making a Living. The words provided here come from the content of learning for Making a Living in Grade six. Syllabus outcomes, criteria, Benchmarks and examination questions have key words that state what students are expected to be able to do.

This section will be in two parts

1. Assessment
2. Teaching and learning

1.1 Assessment glossary

Using the glossary will help teachers and students understand what is expected in responses to assessment tasks.

Term	Definition
analyze	Identify components and the relationship between them, draw out and relate implications
appreciate	Make a judgment about the value of
assess	Make a judgment of value, quality, outcomes, results or size
calculate	Ascertain/determine from given facts, figures or information
classify	Arrange or include in classes/categories
Compare	Show how things are similar or different
construct	Make, build, put together items or arguments
contrast	Show how things are different or opposite
define	State meaning and identify essential qualities
demonstrate	Show by example
describe	Provide characteristics and features
discuss	Identify issues and provide points for and or against
distinguish	Recognize or note/indicate as being distinct or different from; to note differences between
evaluate	Make a judgment based on criteria, determine the value of
explain	Relate cause a
identify	Recognize and name
interpret	Draw meaning from
investigate	Plan, inquire into and draw conclusions about
justify	Support an argument or conclusion

1.2 Teaching and Learning

Term	Definition
crop rotation	One or more crops are grown in separate areas in the field and rotated in order, each year.
inter-cropping	Two crops, for example coconut and cocoa, are grown using definite spacing between plants and rows in the same year.
mixed cropping	More than one crop is planted on a piece of land.
mono cropping	Only one crop is grown on a piece of land
agriculture	The cultivation of land, including raising crops and animals.
bush fallow cultivation	A system of farming which involves clearing a piece of land, cultivating it until the soil loses its nutrients, then moving onto another piece of land. Usually such an area is left fallow (unused) for at least ten years to regain its nutrients naturally, before it is used again. Only a pieces of land are used by a farmer, in a continuing cycle.
compost	A mixture of different kinds of organic matter, such as manure and plant remains, which is decaying. It is used for fertilizing land.
Continuous cultivation	A system of farming which involves cultivating the same piece of land all the time. Its nutrients are renewed because farmers add manure and compost to the soil. Different crops are planted in turn.
Diet	The type of food a person usually takes.
fertilizer	Any material which, when added to the soil ,increases its nutrients so plants will grow better.
humus	When compost is fully decomposed, it is called humus. It is dark brown in color, and an important source of mineral nutrients for plants.
immature soil	Soil which is not well-weathered and has not finished developing.
ingredients	Foods needed to make a recipe.
inorganic fertilizer	Fertilizer made up of chemicals, not organic matter.
insecticides	Poisons which kill insects. They can also be dangerous to humans, so should be avoided if possible.
intensive management	A system of raising poultry where chickens are kept inside, often in small cages, and fed commercial rations. Costs are high but, due to efficiency, money income is also high.
kitchen	The place in the home where food is prepared and cooked
mulch	Dried grass and leaves placed around a plant to prevent water loss and weed growth, and to add nutrients to the soil.
nutrients	Substances in food. They are used by the body for growth, energy, and protection
organic fertilizer	Fertilizer made of organic matter, such as compost.
organic matter	Decomposed remains of organisms, such as plants and animals, used for adding nutrients to soil.
pruning	Cutting excess growth off plants, to encourage better fruiting.
semi-intensive management	Also called the restricted range system of raising poultry. Chickens are kept indoors at night but during the day they can walk around and find food, inside a fenced area.
shifting cultivation	A system of farming which involves clearing a piece of land, cultivating it until the soil loses its nutrients, then moving onto another piece of land. Farmers may or may not come back to the land they have already used.

Term	Definition
soil profile	A vertical cut showing topsoil, subsoil and bedrock is called a soil profile. Sections within a soil profile can vary in different regions, e.g. topsoil will be deeper in a river valley than on a steep slope.
staking	Tying plants to stakes to encourage better growth and fruiting.
subsistence farming	Raising only enough crops and animals for the family's use, with none or only a little left over for swapping. Subsistence farmers usually do not have much cash.
subsoil	The layer underneath the topsoil and above bedrock, it is not cultivated.
topsoil	The surface layer of a soil profile, the layer which is cultivated.
utensils	Equipment use in the kitchen for cooking
goods	A good is something that is useful to people
service	A service is help given to one person by another
production	Is the work done to get goods and services
consumer	A person who use goods and services
consumption	Is the direct consumption of goods and services
surplus	Is the extra goods that have been produced or left over after the producers have consumed enough
exchange	Exchange occurs when people get goods that have been made by others in return for something else
cash	Cash is another name for money
business	A business is made up of a person or a group of people who produce a good or service for money
specialization	Is a process of a business or person applying the skills and knowledge in producing a product and services
expense	Expense is money that a business pays out so that the business can get a revenue
revenue	Is the money coming into a business from the sale of goods and services
profit	Is the extra money that a business earns after paying off its expenses
retailer	A retailer is someone who sells goods or provide services directly to the consumer
customers	Customers are people who buy goods from retailers or wholesalers
retail outlet	Is place where goods and services are sold directly to the consumer
wholesalers	Wholesalers are middle men or women or specialist who buy in bulk from producers
manufacturing	Is a process that involves changing primary products into processed or manufactured goods
technology	Technology refers to the knowledge needed to produce goods either primary products or manufactured goods
manufactured good	A manufactured good is one where the primary product has made or changed into
processed good	A processed good is one which has been made from a primary produce

Term	Definition
semi- processed good	Is a good where the primary product has been partly changed
factory	Is the general name for the place where goods are manufactured
commercial crops	Are crops grown for sale
livestock	Are animals that are kept for sale
exports	Are goods sold to other countries
imports	Are goods bought from other countries
finished products	Are natural resources or raw materials changed into other products
primary products	Are goods which can be changed into other products
diet	The type of food a person usually takes
ingredients	Foods needed to make a recipe
ingredients	The place in the home where food is prepared and cooked
kitchen	Substances in food. They are used by the body for growth, energy, and protection
nutrients	Equipment use in the kitchen for cooking
aesthetics	Characteristics of a product or system that makes it look beautiful and attractive.
artefact	A manufactured object.
compression	A squeezing force
constraints	Aspects that limit conditions within which the work or solution must be developed, e.g. time, materials, tools, human resource, cost, etc.
control	The means by which systems are regulated, i.e. an adjustment of the process, which makes the actual result conform more closely to the desired result.
conventions	Ways of showing information on designs or working drawings that are understood and recognized to have specific meaning.
craft	The repetitive production of artefact's, usually for sale. It requires skill in planning the production and making of items and needs manual dexterity and artistic skill. Craft occupations include carpentry, sewing and pottery. It typically involves repetition where many items, often using existing patterns or plans, are manufactured during a production run. Although there is common ground, craft should not be confused with Technology, nor with Art.
criteria	Statements of a particular standard or requirement that a solution must satisfy.
data	Raw facts and figures (statistics, rainfall figures, temperature readings, etc.). Data may be processed into information.
design (noun)	The plan, sketch, model, drawing, etc. that outlines or shows the intention of the proposed solution.
design brief	A short and clear statement that gives the general outline of the problem to be solved as well as the purpose of the proposed solutions
design process	A creative and interactive approach used to develop solutions to identified problems or human needs. The associated skills are investigating, designing (development of initial ideas), making, evaluating and communicating. The design process is utilized by engineers, architects, industrial designers, and many others when developing original ideas to meet needs or wants, and to solve problems.

Term	Definition
enabling tasks	Activities used to teach and then practice specific skills in preparation for a more advanced task – sometimes also called resource tasks.
findings	Things that have been discovered after a process of investigation or research. Fitness-for-purpose A solution should be evaluated in terms of the design brief, specifications and constraints AND whether it will meet the purpose for which it was designed.
forming	Changing a material's shape without cutting it.
illustrate	Explain or make something clear by using examples or words or diagrams.
input	The command/information entered into a system.
information	Data that has been processed (recorded, classified, calculated, stored, etc.). Knowledge is gained when different kinds of information are compared and conclusions are drawn.
isometric	A 3D drawing where the lines of sight are set at 30 degrees.
machine	A device made up of a combination of simple mechanisms linked so as to form a system for the purpose of doing work. It can be designed to increase the mechanical advantage and decrease the velocity ratio OR to increase the velocity ratio while decreasing the mechanical advantage.
materials	Physical substances used in technology, e.g. wood, textiles, fabric, plastic, food, etc.
mechanical advantage	A concept that describes how much easier mechanisms or machines can make a particular task. The amount of work done is the same, and the amount of energy expended is the same, but the effort used (force) is less because it is applied over a greater distance, and for a longer period of time
mechanism	Parts that can turn one kind of force into another and give mechanical advantage or a distance advantage. Mechanisms can be combined to form a machine. The basic mechanisms are the lever and the wedge/inclined plane. Cams/ cranks and pulleys/gears are adaptations of the wheel and axle – which is itself a special case of the first class lever.
mode	A way or manner in which a thing is done.
modeling	The testing of a solution, (product or system). This could include using small replicas (scale models), and intangible representations of the solution (mathematical models, computer models, etc.).
output	The actual result obtained from a system.
perspective	A 3D artistic drawing in which the lines of sight converge to vanishing points on the horizon. It can be drawn either to a single vanishing point or to double vanishing points (at this level).
product	The physical/tangible artifact that results from the process (model, poster, chart, etc.).
preserving	A process that prolongs the natural life of a product.
process	The part of a system that combines resources to produce an output that is in response to input.
problem	Something that leads to a need or want and that can give rise to an opportunity.
recycle	To reuse all or part of a substance, including breaking it down to raw material status.

Term	Definition
recyclable	A material that can be recycled.
safety	The way that a person works with tools, materials and equipment that does not harm themselves or others physically.
shaping	A process used to change the shape or contour of materials – shaping always involves the removal or addition of material.
specification	An organized, detailed description of the requirements/criteria that the solution or product must meet, e.g. safety, size, material, function, human rights, environment, etc. Note: Once a product has been manufactured, the original design specifications become the features of the product, i.e. specifications before = features after.
system	Something that is made up of interlinked parts that function together as a whole to accomplish a goal. For example a mechanical system has a combination of mechanisms that make it function as a whole; an electrical system has interrelated electrical parts that work together to make the system do what it was designed to do.
technological capability	The ability to use a combination of skills, knowledge, resources in a variety of contexts, to solve a technological problem. Capability leads to technological literacy.
technological solution	A plan that arises by using a systematic problem solving process (ideas, flowcharts, models, etc.).
Technological literacy	The ability to use, understand, manage and evaluate technology.
technological processes	Any process using technology to perform a task e.g. generating electricity, extracting iron from iron ore, galvanizing steel by electroplating, injection molding a plastic bucket, etc.
application	A computer program designed to perform a group of coordinated functions, tasks, or activities for the benefit of the user.
computer	A computer is defined as an electronic device that operates under the control of internally stored instructions that can accept input, process data (both mathematical processes and logical processes), produce output, and store the results. Basically, a computer transforms data into information.
software	Software is the instructions that tell the computer what to do. There are two major types of software: System software and Application software
hardware	The mechanical, magnetic, electronic and electrical components making up a computer system (also see Peripherals.

Term	Definition
monitor	A computer monitor is an output device which displays information in pictorial form.
hard drive	A hard disk or fixed disk, is an electromechanical data storage device that uses magnetic storage to store and retrieve digital information using
external drive	A hard drive or solid state drive (SSD) that is connected to a computer on the outside rather than on the inside
mouse	A hand held pointing device that detects two dimensional motion relative to a surface.
netiquette	Internet etiquette, courtesy and consideration for others while using shared services, social media, mailing lists, etc.
keyboard	A typewriter-style device which uses an arrangement of buttons or keys to act as mechanical levers or electronic switches
ICT	(Information Communication Technology) any communication device or application and the various services and applications associated with them – including radio, television, computer hardware and software and satellite services
generation of computers	The history of computer development in reference to different computing devices
Microsoft word	a word processor developed by Microsoft
Microsoft publisher	Is an entry level desktop publishing program that can be used to create a variety of publications
Microsoft power point	A powerful power point presentation software. This program uses slides to convey information rich in multimedia.

Resources

Making a Living lessons require resources for both the students and the teacher. It is a practical oriented subject therefore requires resources for practical projects. Using the right types of teaching materials and equipment, learning content should be planned and delivered effectively. Teachers are encouraged to use improvised teaching and learning materials. Students can be able to access them inexpensively in the surrounding community.

Classroom specific resources

All classrooms must be fully equipped with relevant resources to be used in all lessons for Making a Living and other six subjects. To teach meaningful lessons a selected list of materials and tools kept in a store room for easy access for use in projects planned to enhance the theory learnt in the classroom situation. These suggested resources are listed to guide teachers to select materials that students must handle comfortably and access cheaply.

Suggested equipment and other learning materials

- gardening tools assorted
- carpentry tools
- hand sewing machines
- basic menial tools
- hammer
- Saw
- plane
- drill and drill bits
- tape measure
- level
- screw driver
- pliers
- nails
- school canteen
- garden land
- livestock enclosures
- receipt book
- gardening tools
- fish pond
- National Department of Education (NDOE) 2006, Making a Living Teacher Resource Book Upper Primary
- National Department of Education (NDOE) 2006, Making a Living Book 1. OUTCOMES EDITION for Papua New Guinea.
- National Department of Education (NDOE) 2006, Making a Living Teacher Resource Book, OXFORD UNIVERSITY PRESS, MELBOURNE.
- Design and Technology-Resistant Materials to GCSE (Anita Tull)
- Art Design Realization
- Basic Technology NDoE Publication
- Home Economics for Papua New Guinea Book 1 (Pamela A Norman)

- Home Economics for Papua New Guinea Book 2 (Pamela A Norman)
- Home Science Today Book 2 (Mabel F Grady)
- Living Craft (Dixon McGrath)
- Design and Technology-Food Technology to GCSE (Anita Tull)
- Design and Technology-Textiles Technology to GCSE (Anita Tull)
- Easy Computer Basics, Windows 7 Edition (Michael Miller)
- Step by Step Computer Learning (Dheeraj Mehrotra)
- Commerce for Melanesians 1 1996, Trevor Tindall 2nd Edition , Australia
- Making a Living Outcomes, Grade 6 Student Book 2005 1st Edition

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- National Department of Education (NDOE) 2006, Making a Living Teacher Resource Book Upper Primary
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- Easy Computer Basics, Windows 7 Edition (Michael Miller)
- Step by Step Computer Learning (Dheeraj Mehrotra)
- Commerce for Melanesians 1 1996, Trevor Tindall 2nd Edition , Australia
- Making a Living Outcomes, Grade 6 Student Book 2005 1st Edition
- www.scibd.com, http://en.wikipedia.org/wiki/Computer_hardware

Appendices

Pictures and various sample information and suggest materials are a listing for teachers to choose from and use in the teaching. These can also be given to students as worksheets prepared from by the teachers.

Appendix 1: Sample timetable

Teaching from a timetabled schedule for a week is very effective and compulsory. This allows for and gives ample time for the teacher to organize and prepare teaching and learning aids.

This suggested timetable is flexible and teachers must teach according to the subjects scheduled per week and the number of lessons identified accordingly. You may make adjustments when equipment and materials are unavailable or swap theory and practical lessons where necessary.

Sample Weekly Timetable for Grade 8

No	Minutes	Time	Monday	Tuesday	Wednesday	Thursday	Friday
-	10	**8:00 - 8:10**	Assembly	Assembly	Assembly	Assembly	Assembly
1	40	**8:10 - 8:50**	English	English	English	English	English
2	40	**8:50 - 9:30**	English	Math	English	Math	Math
3	40	**9:30 - 10:10**	Math	Math	Math	Science	Study
-	**30**	**10:10 -10:40**	**Recess**	**Recess**	**Recess**	**Recess**	**Recess**
4	40	**10:40 -11:20**	Science	Soc Sci	Soc Sci	Soc Sci	CCVE
5	40	**11:20 - 12:00**	11:20 -12:00	Science	Science	Science	
-	**60**	**12:00 - 1:00**	**Lunch**	**Lunch**	**Lunch**	**Lunch**	**Lunch**
6	40	**1:00 - 1:40**	Soc Sci	HPE	CCVE	**MAL**	CCVE
7	40	**1:40 - 2:20**	HPE	**MAL**	Arts	Sports	**MAL**
8	40	**2:20 - 3:00**	Arts	**MAL**	Arts	Sports	RI
	330	**(330 instructional minutes x 5 days = 1650 minutes)**					

Appendix 2: STEAM or STEM

- By exposing students to STEAM and giving them opportunities to explore STEAM-related concepts, they will develop a passion for it and, hopefully, pursue a job in a STEAM field.

- Providing real life experiences and lessons, e.g., by involving students to actually solve a scientific, technological, engineering, or mathematical, or Arts problem, would probably spark their interest in a STEAM career path. This is the theory behind STEAM education.

- By integrating STEAM content and real life learning experiences at different levels of the curriculum process (e.g., Curriculum frameworks, content standards, benchmarks, syllabi, teachers' guides and students' books, curriculum design and development, annual and term school programs and lesson plans, teaching methodologies.

- Teaching methodologies – Problem and project-based learning, partnerships with external stakeholders e.g., high education institutions, private sector, research and development institutions, and volunteer and community development organizations.

- They underpin STEM education. They are the main enablers of STEM education.

- The **21st century skills** movement, which broadly calls on schools to create academic programs and learning experiences that equip students with the most essential and in-demand knowledge, skills, and dispositions they will need to be successful in higher-education programs and modern workplaces.

- The term **21st century** skills refers to a broad set of knowledge, skills, work habits, and character traits that are believed—by educators, school reformers, college professors, employers, and others—to be critically important to success in today's world, particularly in collegiate programs and contemporary careers and workplaces.

- Generally speaking, 21st century skills can be applied in all academic subject areas, and in all educational, career, and civic settings throughout a student's life.

- The skills students will learn will reflect the specific demands that will be placed upon them in a complex, competitive, knowledge-based, information-age, technology-driven economy and society.

Appendix 3: The 21st Century Skills, Knowledge, Attitudes and Values

The following list provides a brief illustrative overview of the knowledge, skills, work habits, and character traits commonly associated with 21st century skills:

- Critical thinking, problem solving, reasoning, analysis, interpretation, synthesizing information;
- Research skills and practices, interrogative questioning;
- Creativity, artistry, curiosity, imagination, innovation, personal expression;
- Perseverance, self-direction, planning, self-discipline, adaptability, initiative;
- Oral and written communication, public speaking and presenting, listening;
- Leadership, teamwork, collaboration, cooperation, facility in using virtual workspaces;
- Information and communication technology (ICT) literacy, media and internet literacy, data interpretation and analysis, computer programming;
- Civic, ethical, and social-justice literacy;
- Economic and financial literacy, entrepreneurialism;
- Global awareness, multicultural literacy, humanitarianism;
- Scientific literacy and reasoning, the scientific method;
- Environmental and conservation literacy, ecosystems understanding; and
- Health and wellness literacy, including nutrition, diet, exercise and public.

Appendix 4: The Blooms Taxonomy

Remembering	How many ways can you travel from one place to another? List and draw all the ways you know. Describe one of the vehicles from your list, draw a diagram and label the parts. Collect “transport” pictures from magazines- make a poster with info.
Understanding	How do you get from school to home? Explain the method of travel and draw a map. Write a play about a form of modern transport. Explain how you felt the first time you rode a bicycle. Make your desk into a form of transport.
Applying	Explain why some vehicles are large and others small. Write a story about the uses of both. Read a story about “The Little Red Engine” and make up a play about it. Survey 10 other children to see what bikes they ride. Display on a chart or graph.
Analysing	Make a jigsaw puzzle of children using bikes safely. What problems are there with modern forms of transport and their uses- write a report. Use a Venn Diagram to compare boats to planes, or helicopters to bicycles.
Evaluating	What changes would you recommend to road rules to prevent traffic accidents? Debate whether we should be able to buy fuel at a cheaper rate. Rate transport from slow to fast etc..
Creating	Invent a vehicle. Draw or construct it after careful planning. What sort of transport will there be in twenty years’ time? Discuss, write about it and report to the class. Write a song about traveling in different forms of transport.

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