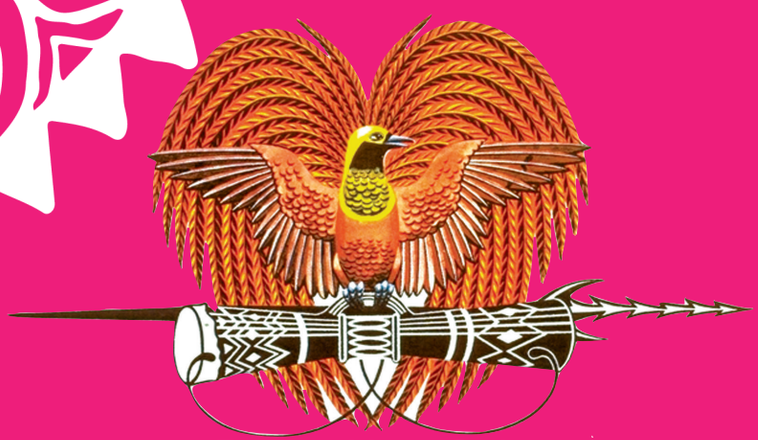
Making A Living

Teacher Guide

Grade 7

Standards Based



Papua New Guinea
Department of Education

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Making A living Grade 7.indd 1 02/08/2019 11:30 AM

Making A living Grade 7.indd 2 02/08/2019 11:30 AM

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Papua New Guinea
Department of Education

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Making A living Grade 7.indd 4 02/08/2019 11:30 AM

Contents

Secretary's message..... iv

Introduction..... 1

Teaching and learning strategies..... 7

Planning and programming..... 11

Content background 26

Guided lessons..... 43

Assessment, recording and reporting..... 74

Glossary..... 91

Resources..... 98

References..... 100

Appendices..... 101

Making A living Grade 7.indd 5 02/08/2019 11:30 AM

Secretary's Message

This Making a Living Teacher Guide for Grade 7 is written to complement the implementation of the Senior Primary syllabus in compliance to the government's 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 modelled 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 7 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

Making A living Grade 7.indd 6 02/08/2019 11:30 AM

Introduction

The Grade 7 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 modelled 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.

Making A living Grade 7.indd 1 02/08/2019 11:30 AM

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:

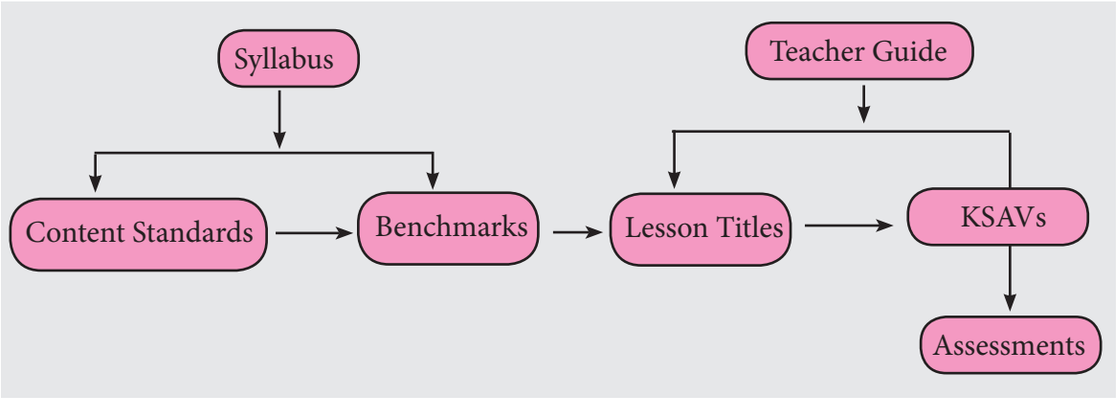
- Understand and expand on the relevant knowledge, skills, attitudes and values (KSAVs) provided in this guide
- Develop teaching programs based on your school contexts
- Plan and develop daily lesson activities
- Plan and conduct assessments to monitor students' achievements.

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.

Making A living Grade 7.indd 2 02/08/2019 11:30 AM

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 Grade 7.indd 3 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 4 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 5 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 6 02/08/2019 11:30 AM

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 Grade 7.indd 7 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 8 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 9 02/08/2019 11:30 AM

- 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.

Making A living Grade 7.indd 10 02/08/2019 11:30 AM

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 6 consists of:

- content overview outlining the strands, units and topics;
- detailed termly and yearly lesson overviews; and
- sample weekly and daily plans.

In Grade 7, the content of this subject comprised of the following:

- 3 strands
- 9 units
- 15 content standards
- 46 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 6.

Strand	Units	Topic
Crop & Livestock Farming	• Crop farming	• Tree cropping • Propagation methods • Plantation agriculture • Tree cropping project
	• Livestock Farming • Land and water Resource Management	• Types of livestock • Farm animals anatomy • Livestock management systems • Soil • Soil improvement and sustainable practices • Land and forest suitable management practices
Business Environment & Practices	• Satisfying needs and wants	• Income and wealth • The wise buyer • Need to budget and save
	• Start a Business and Record Keeping	• Starting a small scale business • Keeping records • Receipts
	• Business communication services	• Business communication • Benefits of communication in business

Making A living Grade 7.indd 11 02/08/2019 11:30 AM

Strand	Units	Topic
Basic Technology	• Introduction to resistant materials	• Safety • Design culture • Elements of design
	• Home management	• Safety & hygiene • Home management • Resources in the home
	• Media and communication	• Safety • Computer basics • Digital devices

Grade 7 Teachable Concepts

Strand	Units	Teachable concepts
Crop & Livestock Farming	• Crop farming	• Types of tree crops grown • Tree cropping techniques • Requirements for tree crop farming • Suitable land for farming • Importance of Special Agriculture Business Leases(SABL) for crop farming • How plantations are managed.
	• Livestock farming	• Common domestic and farm animals • Cultural and nutritional value of farm animals • Benefits and purpose of farm animals • Anatomy of chicken and pigs • Livestock management systems • Livestock care and hygiene of enclosures • Categories of livestock production • Livestock farming project.
	• Land & water resource management	• Soil and its importance to plant growth • Characteristics of good garden soil • Aquaculture farming and its components • Management and practices of aquatic farming • Marine and aquatic animals • Aquatic farm project.
Business Environment and Practices	• Satisfying needs and wants	• Business needs • How business needs can be met
	• Start a business and record keeping	• Process of identifying and meeting business needs. • How to operate and manage a small scale business. • Records kept by a small scale business • Establishing a small scale business project.
	• Business communication services	• Postal services and its functions • Types of services provided by postal services • How postal services contribute to the success of businesses.

Making A living Grade 7.indd 12 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 13 02/08/2019 11:30 AM

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 7

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 guide 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 six school year. Teachers are encouraged to adjust this plan to cater for your students learning needs.

Making A living Grade 7.indd 14 02/08/2019 11:30 AM

Teachers are encouraged to adjust this plan to cater for your students learning needs. Here is a suggested sample done for the Grade 7 teachers to use as a guide to start planning for the school year.

Sample Yearly and Term plan for Grade 7

Term	Weeks	Strand	Unit	Topic	Content Standard	Benchmark
1	2	Crop & Livestock Farming	Crop farming	Cultivation practices of different types of tree crops	7.1.1	7.1.1.1 7.1.1.2
	3	Crop and Livestock farming	Crop farming	Cultivation practices of different types of tree crops	7.1.1	7.1.2.1
	4	Crop & Livestock Farming	Crop farming	Different requirements of crop farming Different types of land suitable for farming	7.1.2	7.1.2.2 7.1.2.3
	5	Crop & Livestock Farming	Crop farming	• Importance of plant nurseries • Special Agriculture Business Leases(SABL) for crop farming • How plantations are managed	7.1.2	7.1.2.4 7.1.2.5 7.1.2.6
	6	Crop & Livestock Farming	Livestock farming	General features of farm animals	7.1.3	7.1.3.1
	7	Crop & Livestock Farming	Livestock farming	• External and internal anatomy of common farm animals • Reproductive system of farm animals	7.1.3	7.1.3.2 7.1.3.3
	8	Crop & Livestock Farming	Land and water resource management	• Farm animals management systems • Economic benefits of farm animals • Benefits and draw backs of raising farm animals.	7.1.4	7.1.4.1 7.1.4.2 7.1.4.3
	9	Crop & Livestock Farming	Land and water resource management	Factors that affect soil formation	7.1.5	7.1.5.1
	10	Crop & Livestock Farming	Land and water resource management	• Soil improvement techniques • Soil formation and crop yield.	7.1.5	7.1.5.2 7.1.5.3

Making A living Grade 7.indd 15 02/08/2019 11:30 AM

Term	Weeks	Strand	Unit	Topic	Content Standard	Benchmark
2	2	Crop & Livestock Farming	Land and water resource management	Land and water resource management	7.1.6	7.1.6.1
	3	Crop & Livestock Farming	Land and water resource management	Effective forest sustainable strategies and practices.	7.1.6	7.1.6.2 7.1.6.3
	4	Business environment and practices	Satisfying needs and wants	Business needs and how these needs can be met	7.2.1	7.2.1.1 7.2.1.2
	5	Business environment and practices	Satisfying needs and wants	Process of identifying and meeting business needs	7.2.1	7.2.1.3
	6	Business environment & practices	Start a business and record keeping	How a small scale business operates	7.2.2	7.2.2.1
	7	Business Environment & Practices	Start a business and record keeping	Types of record keeping	7.2.2	7.2.2.2
	8	Business environment and practices	Start a business and record keeping	Steps to follow in establishing a small scale business	7.2.2	7.2.2.3
	9	Business environment and practices	Business communication services	Benefits of postal and communication services	7.2.3	7.2.3.1
	10	Business environment and practices	Business communication services	Role telecommunication service play in business operations	7.2.3	7.2.3.2

Making A living Grade 7.indd 16 02/08/2019 11:30 AM

Term	Weeks	Strand	Unit	Topic	Content Standard	Benchmark
3	2	Business Environment & Practices	Business communication services	Role postal services play in business operations	7.2.3	7.2.3.3
	3	Basic Technology	Introduction to resistant materials	Basic safety standards	7.3.1	7.3.1.1
	4	Basic Technology	Introduction to resistant materials	Safety standards to avoid work place accidents	7.3.1	7.3.1.2 7.3.1.3
	5	Basic Technology	Introduction to resistant materials	Factors affecting the designing and production	7.3.2	7.3.2.2
	6	Basic Technology	Introduction to resistant materials	Designing a product	7.3.2	7.3.2.3
	7	Basic Technology	Introduction to resistance materials	Designing a product	7.3.2	7.3.2.3
	8	Basic Technology	Introduction to resistance materials	Safety & Hygiene	7.3.3	7.3.3.1
	9	Basic Technology	Introduction to resistance materials	Safety & Hygiene	7.3.3	7.3.3.2
	10	Basic Technology	Introduction to resistance materials	Home management plans	7.3.3	7.3.3.3

Making A living Grade 7.indd 17 02/08/2019 11:30 AM

Term	Weeks	Strand	Unit	Topic	Content Standard	Benchmark
4	2	Basic Technology	Home management	Home improvement plans	7.3.4	7.3.4.1
	3	Basic Technology	Home management	Factors that influence home arrangement and decorations	7.3.4	7.3.4.2
	4	Basic Technology	Home management	Home maintenance	7.3.4	7.3.4.3
	5	Basic Technology	Home management	Home maintenance project	7.3.4	7.3.4.3
	6	Basic Technology	Media and communication	Safety standards when using media and digital devices	7.3.5	7.3.5.1
	7	Basic Technology	Media and communication	Basic safety and ethics	7.3.5	7.3.5.2
	8	Basic Technology	Media and communication	Basic safety and ethics	7.3.5	7.3.5.2
	9	Basic Technology	Media and communication	Functions and purposes of computer	7.3.6	7.3.6.1
	10	Basic Technology	Media and communication	Uses of computers	7.3.6	7.3.6.2 7.3.6.3

Making A living Grade 7.indd 18 02/08/2019 11:30 AM

Suggested Yearly Lesson Title Overview

Content standard	Benchmark	Less #	Lesson Titles	Week
7.1.1. Students will be able to analyze the different tree cropping techniques and associated management practices	**7.1.1.1.** Examine cultivation practices of different types of tree crops	1	Types of garden tree crop	2
		2	Crop selection	
		3	Planting materials	
	7.1.1.2. Analyse the different tree cropping techniques (for example, plant propagation) and evaluate their management.	4	Preparing the soil	3
		5	Direct planting	
		6	Nursery project	
7.1.2. Students will be able to examine the requirements for crop farming, including land management and plant propagation techniques.	**7.1.2.1.** Classify different requirements of crop farming in terms of their importance. **7.1.2.2.** Examine the different requirements for crop farming. **7.1.2.3.** Investigate and ascertain the different types of land that are suitable for crop farming.	7	Requirement of crop farming	4
		8	Types of land composition	
		9	Suitable gardening land	
	7.1.2.4. Discuss the importance of plant nurseries in plant propagation. **7.1.2.5.** Use basic research skills to investigate the use of Special Agriculture Business Leases (SABL) for crop farming and draw conclusions about its impact on people and communities. **7.1.2.6.** Examine how plantations are managed to ensure that they meet production expectations	10	Importance of plant nurseries	5
		11	Special Agriculture Business Lease(SABL) role in crop farming	
		12	Let's look at plantations and how they are managed	
7.1.3. Students will be able to determine the types of domestic and farm animals, and distinguish selected farm animals by their anatomies.	**7.1.3.1.** Compare and contrast the general features of domestic and farm animals such as chickens, pigs, goats, cattle, and guinea pigs	13	External and internal parts of chicken	6
		14	External and internal parts of a pig	
		15	External and internal parts of a cow	
	7.1.3.2. Recognize and illustrate the external and internal anatomy of selected farm and domestic animals. **7.1.3.3.** Compare and contrast the reproductive system and gestation period of selected farm and domestic animal.	16	Digestive system of chicken	7
		17	Digestive system of pigs	
		18	Digestive system of cow	
7.1.4. Students will be able to identify and analyze different types of introduced animal rearing and management practices associated with livestock production.	**7.1.4.1.** Identify and analyse the different introduced animal rearing and management practices. **7.1.4.2.** Examine the economic benefits of management practices applied in selected animal rearing. **7.1.4.3.** Evaluate the benefits and the drawbacks of introduced animal rearing and management practices.	19	Types of introduced livestock	8
		20	Common livestock rearing	
		21	Economic benefits of introduced animal farming	
		22	Mulching	9
		23	Factors affecting plant growth	
		24	What is soil fertility?	

Making A living Grade 7.indd 19 02/08/2019 11:30 AM

Content standard	Benchmark	Less #	Lesson Titles	Week
7.1.6. Students will be able to elaborate on the importance of land management, forest conservation, and land sustainability management practices.	**7.1.5.2.** Examine different ways of improving soil fertility and making soil conducive for cultivating crops.	**25**	What is organic farming?	**10**
		26	Keeping the land fertile	
		27	Mini Organic farming project	
	7.1.5.3. Discuss the importance of soil formation in relation to the health of plants and how much they can produce.	**28**	Properties of fertile soil	**2**
		29	Properties of un fertile soil	
		30	Yield of crops	
7.1.6. Students will be able to elaborate on the importance of land management, forest conservation, and land sustainability management practices.	**7.1.6.1.** Examine various strategies used to manage land and conserve the forest.	**31**	Strategies for land and forest management	**3**
		32	Forest conservation practices	
	7.1.6.2 Investigate strategies and programs targeted at forest conservation and draw conclusions regarding their effectiveness to conserve and sustain the forest. **7.1.6.3.** Evaluate the different land and forest sustainability strategies and practices, and suggest ways of improving these strategies and practices.	**33**	Land conservation practices	
7.2.1. Students will be able to identify different business needs and explain how these needs can be met.	**7.2.1.1.** Identify different business needs.	**34**	Business needs	**4**
		35	Types of businesses	
		36	Formal and informal business needs	
	7.2.1.2. Explain how business needs can be met.	**37**	How small scale formal business needs can be met	**5**
		38	How small scale informal business needs can be met	
		39	Formal and informal small scale business activities	
	7.2.1.3. Use basic research skills to investigate the process of identifying and meeting business needs.	**40**	Small scale business requirements	**6**
		41	Informal business requirements and needs	
		42	Formal business requirements and needs	
7.2.2. Students will be able to examine how small scale business operations are managed and recognize the importance of keeping records.	**7.2.2.1.** Examine how small scale businesses operate and are managed in the formal and informal sectors.	**43**	Stock taking	**7**
		44	Ordering goods	
		45	Storing and Displaying Goods	
	7.2.2.2. Identify and discuss the types of records kept by small scale businesses and analyse the reasons for keeping these records.	**46**	Good ethical business practices	**8**
		47	Types of record keeping	
		48	Record management strategies	
	7.2.2.3. Research an established small scale business in the community and discuss how it is managed.	**49**	Choosing a small scale business	**9**
		50	Plan and research a business activity	
		51	Evaluate the business activity	

Making A living Grade 7.indd 20 02/08/2019 11:30 AM

7.2.3. Students will be able to identify and assess the benefits of postal and telecommunication services to the successes of business operations.	**7.2.3.1.** Use basic research skills to investigate the different types of benefits postal and telecommunication services provide for businesses, and draw conclusions on their reliability, effectiveness, and costs.	**52**	What is telecommunications?	**10**
		53	National and Local Calls	
		54	International Calls	
	7.2.3.2. Discuss how the provision of telecommunication services contribute to the success of business operations	**55**	Telecommunication corporation	**2**
		56	Logistics	
		57	Business communication systems	
	7.2.3.3. Examine the role postal services play in the success or failure of business operations.	**58**	Postal services contributions to individuals	**3**
		59	Postal service contributions to businesses	
		60	Postal service contributions to government and non-government organizations (NGOs)	
7.3.1. Students will be able to examine and appreciate the importance of safety standards when working with wood, metals, and plastics.	**7.3.1.1.** Identify and define basic safety standards when working with wood, metals, and plastics.	**61**	Safety when working with resistant materials (wood, metals and plastics)	**4**
		62	Characteristics of resistant materials (wood, metals and plastics) when working	
		63	Hazards and protective gear when working with resistant materials	
	7.3.1.2. Evaluate the basic safety standards in terms of their effectives and compliance in preventing accidents resulting from work associated with wood, metals, and plastics. **7.3.1.3.** Examine ways of improving the wood, metals, and plastics work safety standards to avoid workplace accidents.	**64**	Traditional and modern technology and impacts	**5**
		65	Elements of design and the design process	
		66	Tools to design and make products	
7.3.2. Students will be able to analyse the factors that influence design decisions relating to production design ideas and solutions.	**7.3.2.1.** Analyse the factors that influence creative designs and the functional modelling of products.	**67**	Innovation and design	**6**
		68	Forms of materials	
		69	Functions of products	
	7.3.2.2. Identify and analyse factors affecting the design and production of solutions, and make a report.	**70**	Factors affecting design	**7**
		71	Evaluate tools, techniques and process	
		72	Communicating the design process	
	7.3.2.3. Apply decision making skills in the designing of a production solution.	**73**	Decisions in design and decision making	**8**
		74	Technical skills In making model	
		75	Evaluating models	

Making A living Grade 7.indd 21 02/08/2019 11:30 AM

7.3.3. Students will be able to identify and demonstrate safety and hygiene standards in the home when dealing with food and clothing	**7.3.3.1.** Discuss safety standards, including food and kitchen hygiene when preparing food, and in the handling of clothing.	**76**	Safety and hygiene in the home	**9**
		77	Food and kitchen hygiene	
		78	Safe and hygiene practices for food storage and preservation	
	7.3.3.2. Identify safety standards when using equipment in the home.	**79**	Equipment in the home and their uses	**10**
		80	Care and maintenance of equipment and tools	
		81	Tools and equipment for food preservation and storage	
	7.3.3.3. Create plans to manage, maintain and store equipment and clothing in the home.	**82**	Care of clothes	**2**
		83	What is designing?	
		84	The design process	
7.3.4. Students will be able to plan, organize and design a home using available resources.	**7.3.4.1.** Use planning, organising and designing processes to organise and improve a home.	**85**	Materials and techniques	**3**
		86	Factors of design	
		87	Designing a product	
	7.3.4.2. Identify and describe the factors that influence the development of a plan for arranging and decorating a home.	**88**	Evaluating the product	**4**
		89	Skills in designing	
		90	The design solution or product	
	7.3.4.3. Examine factors that influence decisions about home maintenance using available resources.	**91**	Communicating the design solution	**5**
		92	Safety	
		93	Safety practices in the home	
7.3.5. Students will be able to comprehend and apply safety standards and ethics when using the media, digital devices and technology.	**7.3.5.1.** Examine the importance of comprehending and applying safety standards when utilizing computers and other digital devices.	**94**	Hygiene	**6**
		95	Hygienic practices in the home	
		96	Safety and risks within the home	
		97	Safety and risks management within the home	
	7.3.5.2. Give reasons for abiding by basic ethics when using digital devices and digital applications in the media.	**98**	Household management	**7**
		99	Resources in the home	
		100	Benefits of managing a home using a plan	
		101	Cleaning equipment	
7.3.6. Students will be able to establish that computers have a variety of purposes and functions.	**7.3.6.1.** Identify the range of functions and purposes of computers and explain their uses.	**102**	Elements in interior home design	**8**
		103	Home and room organization	
		104	Shutting down a computer	
		105	The keyboard	
	7.3.6.2. Examine the different purposes of owning and using computers. **7.3.6.3.** Analyze the use of computers by data processing and management organizations.	**106**	Word processing	**9**
		107	Saving a document	
		108	Lesson demonstration on basic computer operations	

Making A living Grade 7.indd 22 02/08/2019 11:30 AM

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	**7.1.1**	**7.1.1.1**	1 2 3	• Types of garden tree crops • Crop selection • Planting materials
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

Making A living Grade 7.indd 23 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 24 02/08/2019 11:30 AM

Sample Time Analysis for Grade 6

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**

Making A living Grade 7.indd 25 02/08/2019 11:30 AM

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 background in order to deliver effective lessons.

Unit 1: Crop Farming

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.

Crop production can be increased using improved cultivation practices and cropping techniques with modern technology. Plant propagation methods and techniques enable quality plant growth and high yield. Crop requirements such as soil management, plant propagation, pest and disease control, weed control, etc, are necessary for sustainable and quality crop production.

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.

Crops are all the plants produce from the land that is cultivated to meet human needs. It may be for personal use or to generate an income. Crops include our staple foods such as sweet potatoes, yam, taro, cassava, sago, cooking bananas and white potatoes. Common vegetables grown include pumpkin, corn, carrots, tomatoes, beans, peas, choko, aibika, capsicum, lettuces, cabbages, broccoli, cauliflower, eggplants, mushroom and pitpit.

Common fruit tree crops grown include eating bananas, pawpaws, pineapples, lemons, oranges, mangoes, guavas, avocado, custard apple, soursop, pomelo, watermelons, passion fruit, cucumbers and laulaus. There also a great variety of nuts.

Making A living Grade 7.indd 26 02/08/2019 11:30 AM

The value of crops and animals

Crops and animals are important in Papua New Guinea because of their economic, nutritional and cultural value.

Economic Value

The economic value of crops and animals is that they may be used for personal purposes such as food, clothing and traditional dress which provides a saving in what needs to be bought. They can also be sold to provide an income for individuals, families and the nation. Local markets are colourful and plentiful throughout the country and provide a valuable income. In the cash economy in modern society, people need income to buy goods they cannot produce and pay for services such as health, education, travel, electricity and communication.

Cash crops as coffee, cocoa, coconut, tea rubber, timber, oil palm and vanilla are important for trade and export. Papua New Guinea exports its products to many countries throughout the world such as Australia, Japan, United Kingdom, America and Germany. Papua New Guinea has meat and fish canneries and sugar, tea and coffee factories.

Nutritional Value

Crops and animals provide the food that enables us to have healthy bodies. Whether they are produced at home or bought from markets or shops, our diets are comprised of crop and animal foods. Humans have a great variety of foods to choose from to meet their needs. We could not survive without the food that comes from crops and animals.

Consider the nutritional value of the crops and animals you plan to produce. The nutritional value of food is found in the food substances that the body can use for energy, warmth, the growth and repair of tissue, protection from diseases and the regulation of body processes. All of these functions occur when our bodies take in enough of the right kind of food to meet our needs. The substances in food are called ‘nutrients’ and the six nutrients are protein, carbohydrates, fats, vitamins, minerals and water.

Protein foods are all kinds of fish, seafood, animals, eggs, milk, peanuts and legumes, (beans, peas). The body uses the protein in these foods to build and repair tissue. Protein foods are especially important for growing children and injured people. It should be noted that while these foods are rich sources of protein, they also contain other nutrients. Tinned fish for example contains some fat, calcium, iron and vitamin B in addition to protein. Peanut contain some carbohydrate, fat, fibre, calcium, iron and vitamin B in addition to protein.

There are three types of carbohydrate: sugar, starch and cellulose. Sugar is food in sugar cane and all sweet fruits. Starch is found in all our starchy staple foods such as potato, yam, taro, sago, rice, cassava, breadfruit and cooking bananas cellulose is the fibre in food. The body use sugar and starch for energy and warmth. Even when we are asleep we need energy for our heart, lungs and other systems to work and for our bodies to be warm at an even temperature. Fibre

Making A living Grade 7.indd 27 02/08/2019 11:30 AM

in foods is valuable to stimulate the digestive track and enables our bowels to function properly.

Cultivation practices include land preparation, planting methods such as nursery or direct planting, weeding, mulching, irrigation and harvesting. Traditional cultivation practices do not require machines and chemicals for crop production whereas modern cultivation practices require upgraded skills and use of chemicals.

Every farming system uses different cultivation practices such as; mixed cropping, multiple cropping, inter-cropping and crop rotation.

Mixed cropping: More than one crop is grown on a piece of land without any order.

Multiple cropping: Two or more crops are grown with particular spaces between plants and rows. All crops are in the same field but have separate areas. They are not mixed up together.

Mono cropping: Growing only one type of crop on the same piece of land.

Inter-cropping: Two crops, for example coconut and cocoa are grown using definite spacing between plants and rows in the same area.

Crop rotation: One or more crops are grown in separate areas in the field and rotated in order each year. Types of farming systems include: Shifting cultivation, bush fallow, continuous cultivation and plantation

Unit 2: Livestock Farming

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

Animal resources for humans include pigs, chickens, ducks, pigeons, cassowaries, cuscus, wallabies, bandicoots, bats, crocodiles, Birds of Paradise, beef cattle, goats, dogs, water buffalo and horses. Animal resources meet human needs in different ways. Many people make a living from raising animals for personal use or to generate an income. Land animals that are raised to provide food include chickens, pigs, goats, rabbits' sheep and cattle. Wildlife land animals that also provide food are cuscus, wallabies, bats, snakes and bandicoots.

Birds also can be sold to generate an income. Some hotels have big cages for cassowaries, hornbills, cockatoos and guria pigeons. They are used as an attraction for guests to learn about fauna in Papua New Guinea. Some families might buy a bird as a family pet. A wildlife sanctuary could be established at the school with a collection of local reptiles, birds and animals. As well as providing a learning opportunity for students, it could prove an attraction for visitors. However, the main focus of income-generating animal projects is related to animal husbandry. This is concerned with farming animals for food purposes.

Making A living Grade 7.indd 28 02/08/2019 11:30 AM

Common livestock farming includes, poultry, piggery, goat, cattle, rabbit and raising ducks. Both native and introduced animals can be raised at a small or large scale to generate an income to sustain human livelihood.

Farm animals are kept in enclosures and farmed using different farming and management systems. There are three village based livestock management systems that are widely used for livestock production, free range systems, semi-intensive system and intensive management systems. In **Free range management** system the animals are let loose without being enclosed to look for their own food and shelter. This method is the oldest and is used by almost all farmers. In **semi-intensive** management system, the animals are partly controlled rather than being let loose entirely. Intensive system allows the animals to be kept and cared for in enclosures without letting them out until they are matured and ready for slaughtering or sale. Intensive animal production includes poultry farming for eggs and meat, cattle and piggery.

Types of Livestock Management systems

Cattle rearing - Semi-Intensive management system.

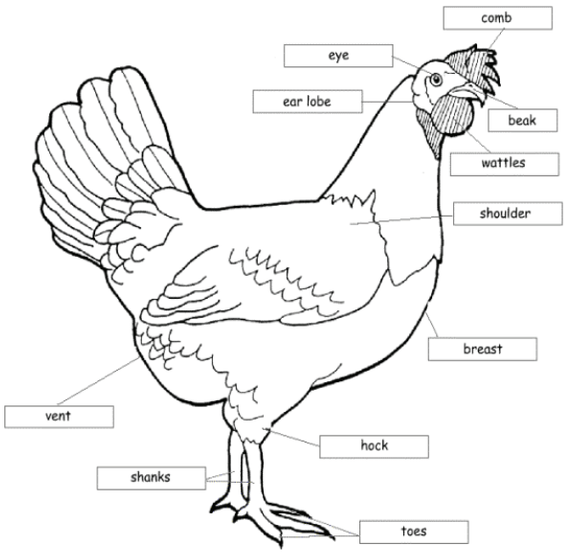
Poultry- Intensive management system

Poultry- Intensive management system

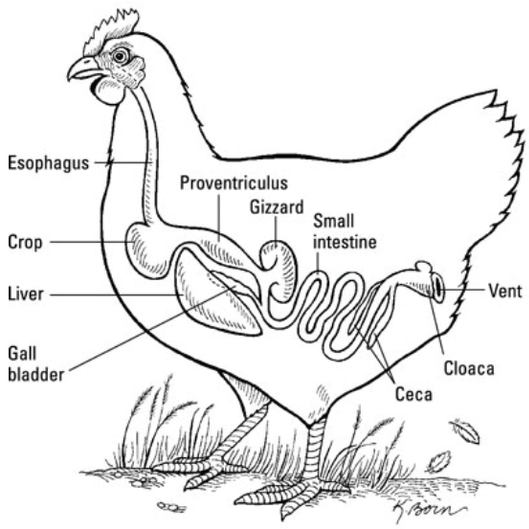
Village piggery project- Free range management system

Making A living Grade 7.indd 29 02/08/2019 11:30 AM

Livestock anatomy

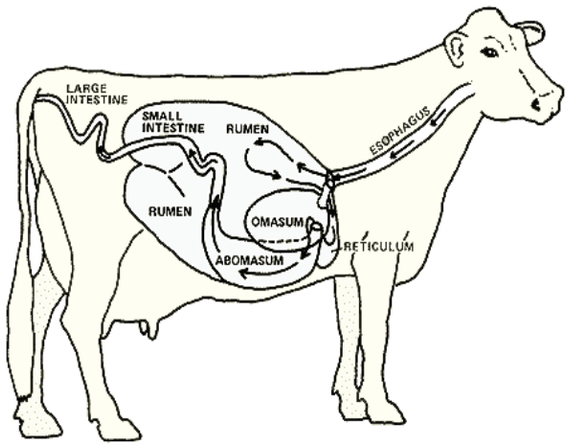


Chicken external anatomy

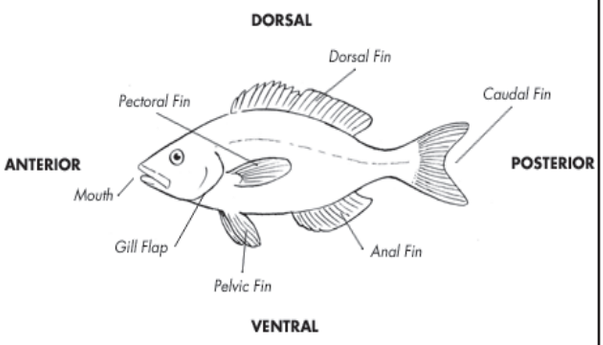


Chicken internal anatomy

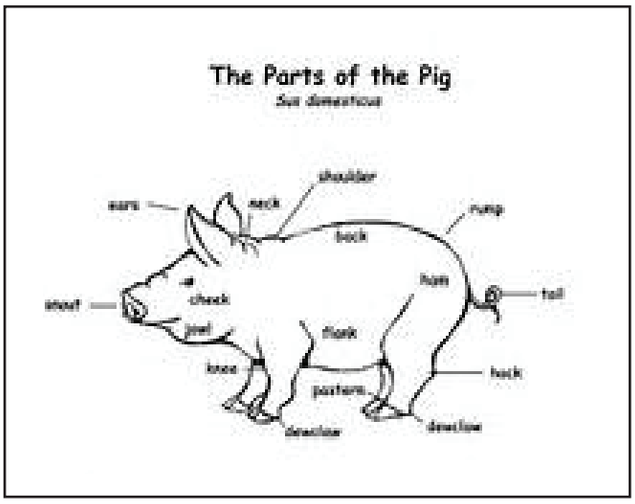
Anatomy of cow

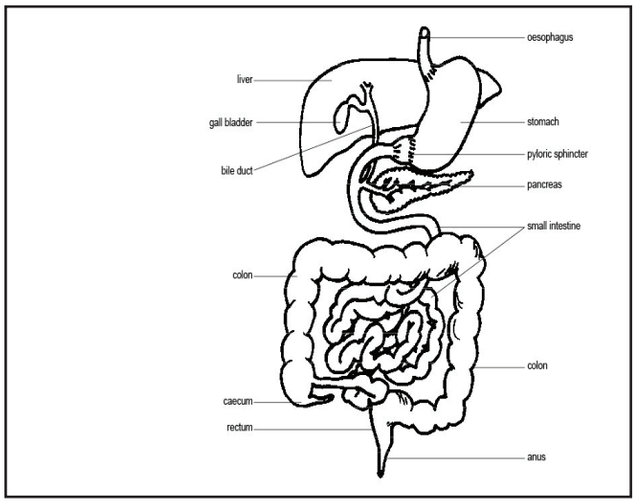


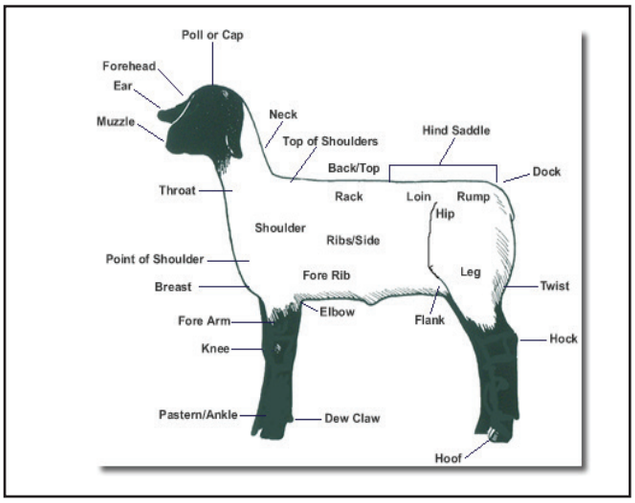
Anatomy of fish



Making A living Grade 7.indd 30 02/08/2019 11:30 AM







Making A living Grade 7.indd 31 02/08/2019 11:30 AM

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 humans 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

Making A living Grade 7.indd 32 02/08/2019 11:30 AM

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

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

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 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.

There are different ways of starting a business. A business can be formal or informal on a small scale or a large scale. There are different ways of starting a business such as; starting from scratch; buy an existing business; starting a new business of an existing type, and going into a franchise operation business plan.

Businesses have certain needs and requirements that need to be met for to ensure sustainability and profitability of businesses. There are factors to consider when doing an initial business plan such as: conducting a market survey; finding ways of selling the product; selecting a suitable site; deciding the types of products to sell; establishing the market for the goods; deciding what to do about the competition, etc

Making A living Grade 7.indd 33 02/08/2019 11:30 AM

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 2: Start a Business and Record Keeping

For sustainable and profitable business proper record of sales and credit purchases should be maintained. A cash book is used for recording transactions. There are other types of business records and documents kept by business owners such as; receipts, bank statements; order forms; credit notes etc. for a sustainable and profitable business.

Unit 3: Business Communication Services

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, voice-mails etc. 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.

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.

Making A living Grade 7.indd 34 02/08/2019 11:30 AM

- Responsible employment practices
- Dealing with dilemmas

• Monitoring and accountability.

Business Advertising

Print Advertising - is when advertisements are published in printed materials. eg newspapers.

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 movies, TV Show, Music, Video' etc.

Making A living Grade 7.indd 35 02/08/2019 11:30 AM

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 modelling and ICT skills as well as the practical skills that are needed to make wood, metal or plastic products.

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 is developed in the making of a product. Safety is very important when working with resistant materials.

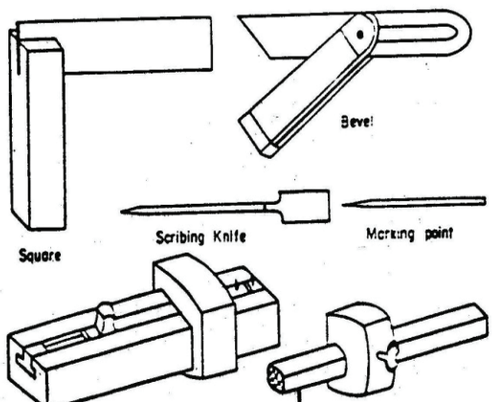
Tools

Carpentry Tools

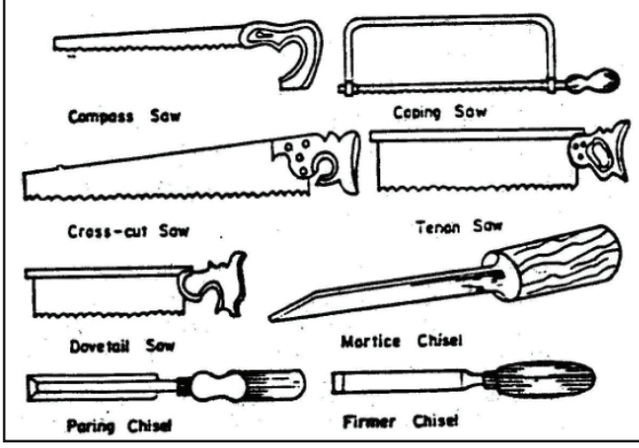
1) Marking and setting out
2) Cutting tools
3) Boring tools
4) Planning tools
5) Hammers and screw drivers
6) Level tools

Making A living Grade 7.indd 36 02/08/2019 11:30 AM

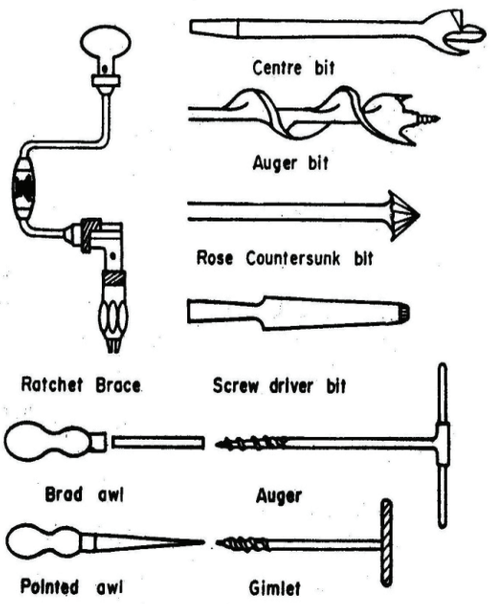
1. Marking and setting out



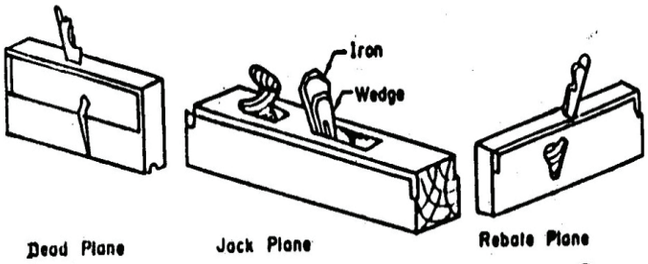
2.Cutting



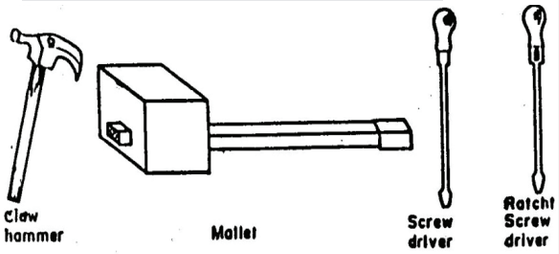
3. Boring



4. Plane



5. Hammers and screw drivers



6. Levels

Levels

Carpenters, Spirit Level

Making A living Grade 7.indd 37 02/08/2019 11:30 AM

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

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.

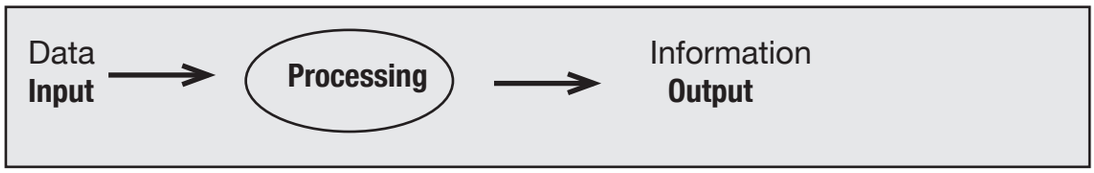
Computer
A computer is an electronic device, operating under the control of instructions stored in its own memory that can accept data (input), process the data according to specified rules, produce information (output), and store the information for future use.

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

Making A living Grade 7.indd 38 02/08/2019 11:30 AM

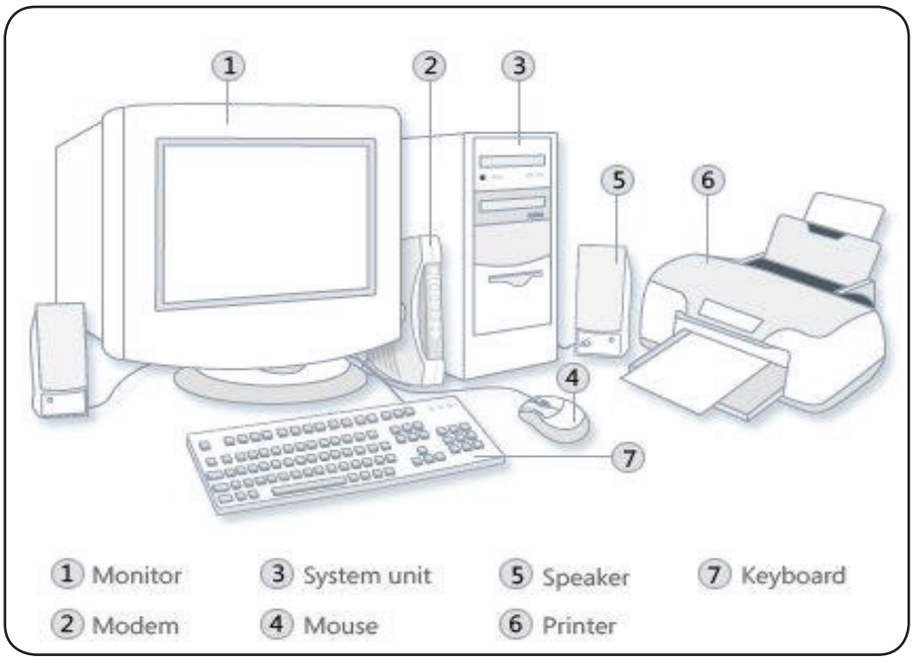


Computer Components

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.

Making A living Grade 7.indd 39 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 40 02/08/2019 11:30 AM

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**.

Making A living Grade 7.indd 41 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 42 02/08/2019 11:30 AM

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 in each strand.

The guided lessons for Grade 7 are 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 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 7

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 seven classrooms. There are **108** suggested teaching lesson titles and 36 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:

Making A living Grade 7.indd 43 02/08/2019 11:30 AM

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.*

Knowledge	Skills
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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Making A living Grade 7.indd 44 02/08/2019 11:30 AM

Guided Lesson Samples

The guided lessons for Grade 7 are 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: Types of garden tree crops.
Content Standard: 7.1.1. Students will be able to analyse the different tree cropping techniques and associated management practices.
Benchmark: 7.1.1.1. Examine cultivation practices of different types of tree crops
Lesson Objective: The students will be able to identify and classify different types of garden tree crops.

Key Concepts:

Knowledge	Skills	Attitudes and Values
• Different types of garden tree crops: bananas, pawpaw, lemon, corn, pipit etc. • Classification of tree food crops - staple food - vegetables - fruits	• Brainstorm types of garden tree crops. • Classify the types of food crops. • Demonstrate using illustrations.	• Appreciate and value of garden tree crops as beneficial to human livelihood.

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

References
Making a Living, SBC Primary Syllabus, DOE, (2017) Waigani, NCD
Making a Living Teachers Resource Book, Outcomes Edition for PNG, Page 24-25.

Teachers Notes

This lesson under the unit crop farming looks at the types of garden tree crops. The teacher should provide background information and pictures of tree crops appropriate for different contexts in this lesson.

Making A living Grade 7.indd 45 02/08/2019 11:30 AM

Teaching and Learning activities

Lesson Parts	Teacher Teaching Activities	Students Learning Activities
Introduction (10mins)	• Teacher asks students to brainstorm and give brief descriptions of any garden food. • Selected students give their oral explanations to the class. • Teacher summarizes student's definitions. • Teacher explains the lesson topic and leads the students focus on the lesson procedures.	• Students pay attention to the teacher • Students provide oral descriptions.
Body (20 mins)	• Teacher explains the prepared activity to the students. • Teacher distributes working materials such as markers, charts, etc. • Teacher supervises and assists students as they do their activities in groups.	• 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.
Conclusion (10 mins)	• Teacher asks revision questions based on the lesson presented. • Collect group work for display	• Students answer revision questions • Display finished tasks.

Teacher Reflection/Evaluation

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Making A living Grade 7.indd 46 02/08/2019 11:30 AM

Sample Lesson No: 2

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

Lesson Title: External parts of chicken

Content Standard: 7.1.3. Students will be able to determine the types of domestic and farm animals, and distinguish selected farm animals by their anatomies

Benchmark: 7.1.3.1. Compare and contrast the general features of domestic and farm animals such as chickens, pigs, goats, cattle, and guinea pigs

Lesson objective: The students will be able to identify and label the different external parts of a chicken

Key concepts

- External parts of a chicken and its functions
- Different parts play a different role for the chicken to survive.

Knowledge	Skills	Attitudes and Values
• External parts of a chicken • Functions of each external part.	• Identify the different external features of chickens and the functions of each part. • Present required information on charts using diagrams and pictures.	• Develop a sense of care and responsibility when handling animals.

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

References:
Making a Living Teachers Resource Book, Outcomes Edition for PNG, Pages: 23-24

Teachers Notes

This lesson under the unit livestock farming looks at the external anatomy of selected farm animals. The teacher should provide background information and pictures of chickens appropriate for different contexts in this lesson.

Making A living Grade 7.indd 47 02/08/2019 11:30 AM

Teaching and Learning Activities

Lesson Parts	Teacher Teaching Activities	Students Learning Activities
Introduction (10mins)	• Teacher asks revision questions based on the previous lesson. • Show a diagram or picture of any bird and ask students to give their descriptions,	• Students answer revision questions. • Give explanations of the features of the bird.
Body (20 mins)	• Teacher explains the prepared activity to the student. • Distribution of working materials such as markers, charts etc. • Teacher supervises and assists students as they do their activities in groups.	• Students listen attentively to the teacher's explanation of the lesson activity. • Group activity on naming and explaining the external anatomy of a chicken. • Selected group of students present their work to the whole class.
Conclusion (10 mins)	• Teacher asks revision questions based on the lesson presented. • Appraise students for their participation during the lesson	• Students answer revision questions • Display completed tasks in the classroom

Teacher Reflection/Evaluation

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Making A living Grade 7.indd 48 02/08/2019 11:30 AM

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

Lesson No: 27

Lesson No:22 Unit 2: Land and Water Resource Management Time: 40 mnt

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

Benchmark: 7.1.5.1. Identify and investigate the factors that affect soil formation and plant growth
Lesson objective: The students will be able to identify the importance of mulch for healthy plant growth

Key concepts

- Mulch is the natural material placed around a plant to maintain the quality of soil.
- Mulching is a soil management technique used for improving soil fertility for healthy plant growth.
- Decaying mulch enriches the quality of the soil and makes a better environment for growing crops.

Knowledge	Skills	Attitudes and Values
• What is mulch? • Benefits of mulch.	• Define mulch in oral and written explanation. • Discuss and share ideas in relation to the benefits of using mulch. • Apply correct processes involved in mulching.	• Appreciation of the value of dry grass and other decaying plant materials used as mulch. • Self-reliance and cooperative learning.

Resources
Chalk board, student's exercise books, cartridge papers, markers, student text books.

Reference
Making a Living Book 2, Outcomes Edition for PNG, Page 115.
Making a Living Teachers Resource Book, Outcomes Edition for PNG, Pages: 28

Teachers notes
This lesson under the unit land and water resource management looks at mulching. The teacher should provide background information on appropriate key concepts for this lesson as well as demonstrate this through practical applications using the school flower gardens

Making A living Grade 7.indd 49 02/08/2019 11:30 AM

Teaching and Learning Activities

Lesson Parts	Teacher Teaching Activities	Students Learning Activities
Introduction (10mins)	• Teacher revises key concepts taught in Lesson 4. (Preparing the soil.) • Draw students' attention to the general care of soil.	• Students may ask questions for clarity on related information. • Selected students share experiences of soil and plant care in their homes.
Body (20 mins)	• Teacher asks the students to define mulch according to their own understanding. • Teacher displays prepared summary of the definition and benefits of mulching. • Teacher supervises and assists students as they do their activities in groups.	• Students brainstorm definition of mulch using a concept map. • A selected group member reads out the definition to the whole class. • Discuss and share ideas on the benefits of mulching. • Students read and copy summary notes into their workbooks.
Conclusion (10 mins)	• Teacher asks revision questions based on the lesson presented. • Thank and praise students for their effort	• Students answer revision questions

Teacher Reflection/Evaluation

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Making A living Grade 7.indd 50 02/08/2019 11:30 AM

Strand 2: Business Environment and Practices
Unit 1: Satisfying Needs and Wants

Sample Lesson: 4

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

Lesson Title: Business Needs.
Content Standards 7.2.1. Students will be able to identify different business needs and explain how these needs can be met.
Benchmark: 7.2.1.1 Identify different business needs.

Lesson Title: Importance of Government Communication services to businesses

Lesson Objective: Students can be able to the necessary needs that can be met prior to establishing a formal or informal business.

Key Concepts:

- There are business needs that require necessary planning and identifying prior to establishing the type of business.
- Business needs such as; location of business, demand of goods and services, capital, etc;

Knowledge	Skills	Attitudes and Values
• Income generating activities have needs that should be met prior to establishing the type of business activity. • Business needs such as, money, demand, location, etc. should be considered prior to establishing the type of business.	• Explore income generating activities and business needs necessary for sustainable and profitable business. • Discuss and describe the importance of meeting the business needs prior to establishing the type of business.	• Value the time, effort and resources used in planning and meeting business needs and requirements.

Resources: Pictures of Cartoons of different small scale businesses
References: Trevor Tindal, Commerce for Melanesians Second Edition -

Teachers Notes

This lesson emphasises on the business needs that should be met prior to establishing a small scale business. Community involvement is required in this lesson. Trade store owners, bus owners and betel nut sellers can be interviewed to collect information on how they start their business.

Making A living Grade 7.indd 51 02/08/2019 11:30 AM

Teaching and Learning Activities

Lesson Parts	Teacher Teaching Activities	Students Learning Activities
Introduction (10mins)	• Show students pictures or cartoons of different business activities. • Ask students to briefly discuss the reasons for people engaging in different types of business activities. • Teacher introduces the lesson by asking lead up questions. What should be done before starting a business?	• Students to recognize and identify pictures or cartoons • Ask students to give a brief account of observation or experience of a family member running a small business in their community.
Body (20 mins)	• Teacher describe and explain the different needs that should be met in order to start a business activity. • Teacher supervises students and assist where necessary • Teacher selects one group to present their discussions to the whole class • Summarize main points on the blackboard.	• Students get into their groups and discuss some of the basic needs that should be considered prior to starting a business. • Students present their group work to the whole class,
Conclusion (10 mins)	• Asks students to copy the summary on the board • Thank and praise students for their effort.	• Students copy the blackboard summary.

Teacher Reflection/Evaluation

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Making A living Grade 7.indd 52 02/08/2019 11:30 AM

Strand 3: Basic Technology
Unit 1: Introduction to Resistant Materials

Sample Lesson: 5

Lesson Title: Safety when working with resistant materials (wood, metals and plastics)	
Lesson No: 61	
Strand: 3. Basic Technology	**Unit: 1 Introduction to Resistant Materials**
Topic: Safety	
Content Standard:	**7.3.1.** Students will be able to examine and appreciate the importance of safety standards when working with wood, metals, and plastics
Benchmark	**7.3.1.1.** Identify and define basic safety standards when working with wood, metals, and plastics.
Key Question:	1. What are the safety standards when working with resistant materials 2. what is the importance of safety standards when working with wood, metals, and plastics
Lesson objective (s) :	1. define safety in the workshop when working with wood, metals and plastics 2. Create a safety standards for the workroom where working with resistant materials-wood, metals and plastics take place
Teaching period:	40 minutes
Preparations:	Chart of safety symbols, colour coding and what they mean Sample rules for a workshop
Key concepts(s):	Safety when working with resistant materials-wood, metals, plastics

Learning content

Knowledge	Skills	Attitudes and Values
• Safety in the aspects of environment, equipment and procedures when working with resistant materials • Colour coding in health and safety	• Identify and discuss safety within the working environment, with equipment and procedures • Identify the colour coding used in health and safety	• Responsible with safety • Value safety and health procedures for self and others

Teacher's Notes:

Safety

Safety is the state of being "safe", the condition of being protected from harm or other non-desirable outcomes. Safety can also refer to the control of recognized hazards in order to achieve an acceptable level of risk.

Safety practices are the conducts that are being identified to protect, the eyes, ears, hands and feet and the body as a whole. Safety practices also include the workshops or classrooms that practical skills learning takes place.

Factors to consider when designing a classroom as a workshop;

- Emergency door
- Floors must not be slippery
- Movement must not be obstructed by objects
- Proper storage space for tools and materials
- Neat and Tidy workplace

Making A living Grade 7.indd 53 02/08/2019 11:30 AM

Lesson Procedure

Time Section	Teacher Activity	Student Activity	Points to consider
Introduction (5mins)	• Assess prior knowledge • Ask students about the idea of being safe • Who is safe? What do you do to know that you are safe? Why is it important to observe safety practices?	• Explain their idea of being safe • Brainstorm reasons for the importance to observe safety practices	• Being safe means to be free from harm or not in any danger. • Consider students responses on their ideas about safety.
Body (35 mins)	• Explain the importance of safety considering own life and the lives of others **Activity 1** Bring students into a cluttered room with a messy floor, spilled water, objects lying around, closed windows, only one door, work desks full of articles • Students work in groups to assess the situation in the classroom and come up with rules that will be based on each item that is seen as unsafe. • Each group will develop a rule, explain the consequences of breaking that rule and what it will do it is followed and present to the class **Activity 2** • In the same groups design a safe classroom to be used as a workshop • Presentation of ideas • Summarize the importance of designing a workroom that is safe.	• Safety is not allowing any danger to harm self and others • In groups work on the assigned task • Do presentation in groups • In groups work on assigned task • Do presentations in groups • Observe the summary of the importance of designing a room that is safe from harm to self and others.	• Emergency door • Floors must not be slippery • Movement must not be obstructed by objects • Proper storage space for tools and materials • Neat and tidy workplace • Following rules
Conclusion (5mins)	• Ask two students to explain the need to have safety rules in a workroom	• Explain the need to have safety rules in a workroom	

Teacher Reflection/Evaluation:

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Making A living Grade 7.indd 54 02/08/2019 11:30 AM

Unit 3: Media and Communication

Sample Lesson: 5

Lesson Title: Safety for storage and using computers	
Lesson No:94	
Strand: 3. Basic Technology	**Unit: 3 Media and Communication**
Topic: Safety	
Content Standard:	**7.3.5.** Students will be able to comprehend and apply safety standards and ethics when using the media, digital devices, and technology.
Benchmark	**7.3.5.1.** Examine the importance of comprehending and applying safety standards when utilizing computers and other digital devices
Key Question:	1. Why is it important to follow safe storage standards for computers 2. Why is it important to use computers correctly?
Lesson objective (s) :	1. Develop safe storage standards for computers 2. Formulate safe ways of using computers and digital devices
Teaching period:	40 minutes
Preparations:	1. Safety rules in a computer room 2. Plan on how to set up computer connections 3. User manuals of computers and digital devices
Key concepts(s):	1. Safe storage measures 2. Safe use of computers

Learning content

Knowledge	Skills	Attitudes and Values
• Safe storage of digital devices (lighting, ventilation, cooling system, space, power connections) • Safe usage of computers	• Observe and recognize the safety measures in storing digital devices • Demonstrate correct and appropriate use of computers	• Value and appreciate technology • Value digital devices and care for them

Teacher's Notes:

Safe storage standards for computers and digital devices Considerations

I. Adequate lighting, good ventilation, cooling system, space, power connections, power supply, built in cupboards and drawers, free from moisture
II. User friendly steps(user manual) , safe digital device handling
III. Safe connections of computers (personal computers) to reduce the risk of damaging computers and personal harm

Making A living Grade 7.indd 55 02/08/2019 11:30 AM

Lesson Procedure

Time Section	Teacher Activity	Student Activity	Points to consider
Introduction (5mins)	• Assess prior knowledge • Asks students related questions of computers and its uses in own homes. • Ask students to relate experiences on prior knowledge of personal computers, laptops, smart phones	• Students relate on any experiences they may have on operating personal computers, laptops, smart-phones	• How do they use digital devices? • Is it important to follow the device user manual
Body (35 mins)	**Activity** Create 3 work stations for students to move around and complete the tasks and given 10 minutes at a time. **Workstation 1**. Construct safe storage measures for a computer and digital devices and display on a chart **Workstation 2.** Design a plan on what to do when connecting a computer **Workstation 3.** Develop safe handling measures of smart phones, digital cameras, Teacher work together with the students to put all the students work together and create a wall digital safety chart.	**Activity** Move into assigned groups and complete the tasks within the given time. Groups will move from one workstation to the next completing the task outlined at the workstation. Teacher work together with the students to put all the students work together and create a wall safety chart.	• Why is it important to follow safe storage standards for computers and digital devices • Why is it important to use computers and devices correctly? • Care of computers and digital devices is important.
Conclusion (5mins)	Display wall digital safety chart and ask students to state why taking care of computers and digital devices is important.	• Put up wall digital safety chart and state why care of computers and digital devices is important.	

Teacher Reflection/Evaluation:

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Making A living Grade 7.indd 56 02/08/2019 11:30 AM

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	**7.1.1.** Students will be able to analyse the different tree cropping techniques and associated management practices		
Benchmark	**7.1.1.1.** Examine cultivation practices of different types of tree crops		
Lesson No.& Title	**Knowledge**	**Skills**	**Attitudes/Value**
1. Types of garden tree crop	• Types of garden tree crops:bananas,pawpaw corn, cassava, capsicum,etc.	• Identify and list types of garden tree crops	• Appreciation of the value of value of tree crops.
2. Crop selection	• Crop selection is important in gardening • Select seeds and other planting materials from healthy parent plants	• Apply the appropriate crop management practices in the planting stages	• Ability to show initiatives and cooperative learning.
3.Planting materials	• Quality planting materials will help produce healthy and high yielding crops. • Planting materials consist of seeds, stem cuttings, tubers, suckers, shoots and seedlings	• Adapt acquired knowledge and skills to make a small garden.	• Appreciation of the value of various planting materials.
Benchmark	**7.1.1.2.** Analyze the different tree cropping techniques (for example, plant propagation) and evaluate their management.		
4. Traditional food crops	• Land choice and preparation. • Choose a suitable site and clear the land for planting	• Discuss and identify suitable land areas and the preparation stages of the soil for planting.	• Innovative and selective in decision making.
5. Direct planting	• Direct planting is the planting of seeds directly into the prepared seedbeds. • Direct planting method can be done on plants such as corn, bean, watermelon and peanut which have large seeds.	• Plan and do a collection of planting materials appropriate for direct planting.	• Ability to show initiative and take ownership of their work.

Making A living Grade 7.indd 57 02/08/2019 11:30 AM

6. Building a nursery	• What is a nursery? • Types of nurseries • Poly bag and seed box nurseries.	• Plan and build a mini plant nursery.	• Value and appreciate the importance of nursery
Content standard	**7.1.2.** Students will be able to examine the requirements for crop farming, including land management and plant propagation techniques.		
Benchmark	**7.1.2.1.** Classify different requirements of crop farming in terms of their importance. **7.1.2.2.** Examine the different requirements of crop farming. **7.1.2.3.** Investigate and ascertain the different types that are suitable for crop farming. **7.1.2.4.** Discuss the importance of plant nurseries in plant propagation.		
7. Nursery and transplanting	• Requirements of crop farming • Importance of a nursery and transplanting strategies • Types of seeds that require seed box nursery and care of seedlings in poly bags	• Research and present findings on the requirements of crop farming • Discuss the importance of nursery and care of seedlings.	• Appreciation of the need to grow crops. • Cooperative learning
8. Planting space	• Plant spacing helps to maintain cleanliness and healthy plant growth.	• Apply the skill of weeding when working in gardens.	• Appreciation of the importance of availability of land.
9. Caring for tree crops	• Tree cropping requires special care and maintenance from planting stages to the harvesting stages	• Implement appropriate skills of weeding and watering to maintain good plant growth and high crop yield.	• Being careful and have pride in what they grow and harvest.
Benchmark	**7.1.2.5** Use basic research skills to investigate the use of Special Agriculture Business Leases (SABL) for crop farming and draw conclusions about its impact on people and communities. **7.1.2.6.** Examine how plantations are managed to ensure that they meet production expectations.		
10. Special Agriculture Business Lease(SABL) role in crop farming	• Special Agriculture Business Lease(SABL) role in crop farming • Benefits of SABL	• Carry out a research and outline the functions of SABL in crop production • Lists the benefits of SAL on peoples lives	• Appreciation of the implementation of SABL for sustainable living • Value the benefits of SABL on people and communities
11. Impact of Special Agriculture Business Lease(SABL)	• Impacts of Special Agriculture Business Lease(SABL) • Advantages and disadvantages of SABL on people and communities	• Interview and report findings on the advantages and disadvantages of SABL • Discuss and list common examples of areas affected by the application of SABL	• Accept the impacts created by the use of SABL and be productive citizens.
12. Let's look at plantations and how they are managed	• What are plantations? • How plantations are managed • Plantation management and labor intensive	• Discuss and describe effective plantation management strategies	• Appreciation of plantations and beware of labor intensive requirements for healthy and quality crop production

Making A living Grade 7.indd 58 02/08/2019 11:30 AM

Content standard	**7.1.3.** Students will be able to determine the types of domestic and farm animals, and distinguish selected farm animals by their anatomies.		
Benchmark	**7.1.3.1** Compare and contrast the general features of domestic and farm animals such as chickens, pigs, goats, cattle and guinea pigs		
13. External parts of a chicken	• Physical features of chicken • Functions of each part	• Illustrate and label the external parts of a chicken	• Appreciate the nutritional and economic benefits of raising chickens
14. External parts of a pig	• Physical features of pig • Functions of each part	• Illustrate and describe the function of each part	• Being aware of the nutritional and economical value and benefits of raising and caring for pigs
15. External parts of a cow	• Physical features of cow • Functions of each part	• Draw and label the parts of a cow and describe the function of each part	• Being considerate of the benefits and at the same time labor involved in raising cattle
Benchmark	**7.1.3.2.** Recognize and illustrate the external and internal anatomy of selected farm and domestic animals. **7.1.3.3.** Compare and contrast the reproductive system and gestation period of selected farm and domestic animal		
16. Destive system of chicken	• Digestive system of chicken • Function of each part of the digestive tract.	• Illustrate and describe the function of each part of the digestive tract.	• Being considerate of how animals feed and value animals.
17. Digestive system of pigs	• Digestive system of pigs • Function of each part of the digestive tract.	• Illustrate and describe the function of each part of the digestive tract.	• Being aware of how food is eaten and digested certain animals.
18. Digestive system of cows	• Digestive system of cow • Function of each part of the digestive tract.	• Illustrate and describe the function of each part of the digestive tract.	• Show appreciation and love of raising and caring for livestock.
Content standard	**7.1.4.** Students will be able to identify and analyse different types of introduced animal rearing and management practices associated with livestock production.		
Benchmarks	**7.1.4.1.** Identify and analyse the different introduced animal rearing and management practices. **7.1.4.2.** Examine the economic benefits of management practices applied in selected animal rearing. **7.1.4.3.** Evaluate the benefits and the drawbacks of introduced animal rearing and management practices.		
19. Types of introduced livestock	• What are introduced animals? • Benefits of raising introduced animals.	• Visit an existing introduced animal farm in their community and report on how the animal is raised and cared for.	• Being aware of the importance of raising introduced animals in their local community.
20. Local introduced animal farms	• Types of management techniques applied in introduced animal farming. • Care and hygienic practices for animal enclosures.	• Research and report on the type of locally raised introduced animals and hygienic practices applied in animal enclosures.	• Appreciate and value the importance of raising introduced animals.

Making A living Grade 7.indd 59 02/08/2019 11:30 AM

21.Benefits of introduced animal farming	• Short term benefits of introduced animal farming. • Long term benefits of introduced animal farming.	• Discuss and list economic and nutritional benefits of the type of introduced animal raised in the community.	• Appreciation of the benefits of raising introduced animals on small scale.
Content standard	**7.1.5.** Students will be able to identify and investigate the factors affecting soil formation and plant growth.		
Benchmark	**7.1.5.1.** Identify and investigate the factors that affect soil formation and plant growth.		
22. Factors that affect soil formation	• Land formation is affected by natural and artificial factors • Different areas have different land formation such as, rocky areas, desert, volcanic soil and ice.	• Describe and locate on atlases the types and formation and justify if the type of land formation is conducive for plant growth.	• Appreciate and value importance of land
23. Types of soil formation	• Different areas have different land formation and soil composition	• Describe why some areas have less food production then other areas.	• Appreciate and value soil as the main source for plant growth.
24. Plant growth and yield	• Conducive soil provides the best avenue for healthy crop production. • Plants grow well in good garden soil and produce good harvest.	• Discuss how plants obtain their nutrients and supply it to the rest of the plant. • Illustrate the process with simple illustrations	• Value land as the source of plant growth and take care of it
Benchmark	**7.1.5.2.** Examine different ways of improving soil fertility and making soil conducive for cultivating crops.		
25. What is organic farming?	• Define organic farming • What organic farming consist of and how it is applied	• Research and illustrate organic farming and describe its impacts on crop production	• Value the importance of organic farming
26. Organic farming practices	• Organic farming practices • Application of management techniques	• Discuss and list organic farming practices	• Being aware of organic farming and its impacts on lives
27. Mini Organic farming practices	• Mini class organic farm project	• Plan, design and implement a mini-class organic farming	• Show affection for the project and commitment to managing it over time
Benchmark	**7.1.5.3.** Discuss the importance of soil formation in relation to the health of plants and how much they can produce.		
28. Benefits of good garden soil	• Land conservation strategies such reforestations, plantations, and planting legume and cover crops	• Prepare and make awareness of land conservation practices	• Confidence and persuasiveness in carrying out awareness campaigns
29. Keeping the land fertile	• Natural and artificial techniques of keeping the land fertile.	• Describe strategies for maintaining land fertility over time.	• Appreciate land as important resource for human livelihood over time.
30. How to help conserve land	• Awareness campaigns of land and forest sustainable practices.	• Develop plans and awareness campaigns within class and schools to enhance land and forest sustainability.	• Awareness of the importance and consequences of mismanagement of land and forest resources and products.

Making A living Grade 7.indd 60 02/08/2019 11:30 AM

Content Standard	**7.1.6.** Students will be able to elaborate on the importance of land management, forest conservation, and land sustainability management practices.		
Benchmark	**7.1.6.1.** Examine various strategies used to manage land and conserve the forest. **7.1.6.2.** Investigate strategies and programs targeted at forest conservation and draw conclusions regarding their effectiveness to conserve and sustain the forest. **7.1.6.3.** Evaluate the different land and forest sustainability strategies and practices, and suggest ways of improving these strategies and practices.		
31. Planting cover crops	• Cover crops protect the top soil from soil erosion such as legumes and forest	• Identify and list the types of cover crops and describe their functions	• Appreciate the importance of planting cover crops
32. Contouring	• Contouring method and its importance to soil management	• Illustrate and describe the contouring method of soil management	• Being considerate of the importance of soil
33. Reforestation	• Reforestation and its importance to the soil	• Describe reforestation and its importance to the land	• Appreciate and value reforestation as a means of land conservation over time

Making A living Grade 7.indd 61 02/08/2019 11:30 AM

Strand 2: Business Environment and Practices			
Content standards	**7.2.1.** Students will be able to identify different business needs and explain how these needs can be met		
Benchmark	**7.2.1.1** Identify different business needs		
Lesson No.& Title	**Knowledge**	**Skills**	**Attitudes/Values**
34. Business Needs	• Define business as an Income generating activity. • Business needs are necessary for sustainable and profitable business	• Explore income generating activities and analyse the operations of the different activities involved in earning an income.	• Appreciate and value the time, effort and resources used in starting a business.
35. Types of businesses	• Types of Business activities • Any form of income generating activity on is a form of business.	• Critically examine different types of business on small and large scale.	• Appreciate and value the importance of establishing a business for productive living
36. Formal and informal business needs	• Formal and informal business needs such as capital, market and demand	• Investigate types of formal and informal business activities and discuss how they function • Compare formal and informal business activities and discuss their purpose and functions	• Appreciation of formal and informal businesses as income generating activities and contributes to the well-being of individuals and communities
Benchmark	**7.2.1.2** Explain how business needs can be met		
37. How small scale formal business needs can be met	• Proper and careful planning is required for effective business. • Formal small scale business needs.	• Discuss and list different formal business needs at local and community level.	• Being considerate and confident in meeting the challenges of business in the cash economy
38. How small scale informal business needs can be met	• Proper and careful planning is required for effective business • Informal small scale business needs	• Describe informal business sector and list how business needs are being met.	• Appreciate the need of establishing a small scale informal business activity
39. Formal and informal small scale business activities	• Small scale business activities require a small population of people and done at the local level at an irregular period of time without meeting government laws.	• Examine types of formal and informal business activities in the community • List different types of businesses and the types of goods and services they provide.	• Confidence and pride in the type of business activity established

Making A living Grade 7.indd 62 02/08/2019 11:30 AM

Benchmark	**7.2.1.3.** Use basic research skills to investigate the process of identifying and meeting business needs.		
40. Small scale business requirements	• Business requirements for establishing a business on small scale.	• Discuss types of businesses and identify the basic requirements necessary for establishing a business on small scale.	• Being critical and careful in choosing the right type of business activity.
41. Informal business requirements and needs	• Informal business requirements necessary for the establishment of an informal business.	• Discuss and outline the requirements for an informal business.	• Being creative and confidence in establishing and operating a business on a small scale
42. Formal business requirements and needs	• Formal business requirements for establishing a formal business activity.	• Carry out a research and report on the formal business requirements necessary for the establishment of a formal business.	• Being wise in decision making when dealing with a money generating business activity.
Content Standard	**7.2.2** Students will be able to examine how small scale business operations are managed and recognize the importance of keeping records.		
Benchmark	**7.2.2.1.** Examine how a small scale business operates and is managed in the formal and informal sector.		
43. Stock taking	Small scale business operation procedures • Storage • Stock take	• Critically analyse the importance of applying proper procedures for the storing of goods and doing stock take for efficiency and effective customer service.	• Being considerate of the importance of stock taking of goods and services
44. Ordering goods	Small scale business (formal / informal operation procedures • Ordering goods • Displaying of goods	• Identify small scale business operation procedures in ordering and the displaying of goods.	• Appreciate and value the application of correct business procedures in small scale business (formal and informal sector).
45. Storing and Displaying Goods	Small scale business (formal / informal operation procedures • Ordering goods • Displaying of goods	• Identify small scale business operation procedures in ordering and the displaying of goods and critically analysis the importance of applying proper procedures for the efficiency and effective customer service	• Appreciate and value the application of correct business procedures in small scale business (formal and informal sector).
Benchmark	**7.2.2.2.** Identify and discuss the types of records kept by a small scale business activity, and analyse the reasons for keeping these records.		
46. Good Ethical Business Practices	• Management Skills of • Record Keeping • Maintaining financial transactions / Records	• Identify and explain practices that are client focused and management skills applied in a business environment	• Value customer satisfaction as the pride of a business.

Making A living Grade 7.indd 63 02/08/2019 11:30 AM

47. Types of record keeping	• Daily cash books • Receipts and payments	• Explore the different types of daily sales record and demonstrate their understanding by illustrating for sample of each type of records.	• Appreciate that use of sale records and balance sheets helps business to proper.
48. Record Management strategies	• Record of files • Receivable and payable	• Collect and compile samples of transaction documents	• Appreciate the importance of record keeping
Benchmark	**7.2.2.3.** Research an established small scale business in the community and discuss how it operates and is managed.		
49. Choosing a small scale business	• Requirements of small scale business activities	• Carry out a research on the success of small scale business activity	• Being confident to conduct a small scale business
50. Plan and research business activity	• Strategies for planning and research such as using questionnaires and interviews	• Plan, design and create a mini research questionnaire on the selected business activity	• Appreciate and value the research skills to help identify needs for improvement
51. Evaluate the business activity	• Identify the strength and weaknesses of the business activity	• Evaluate strengths and weaknesses of the business activities and suggest ways of improvements.	• Value research skills as the basis for improving business practices
Content Standard	**7.2.3.** Students will be able to identify and assess the benefits of postal and telecommunication services to the successes of business operations		
Benchmark	**7.2.3.1.** Use basic research skills to investigate the different types of benefits postal and telecommunication services provide for businesses, and draw conclusions on their reliability, effectiveness, and costs.		
52. What is Telecommunications?	• Benefits that postal and telecommunication services provides for business such as; TNT, Post PNG Air Nuigini Cargo	• Evaluate the effectiveness and efficiency of postal and telecommunication services provided by different companies.	• Appreciate and respect the use of telecommunication systems in business environment.
53. National and Local Calls	• Logistics and telecommunication services • Postage and handling • Transport & Logistics • Communication networks	• Investigate and identify logistics and telecommunication companies that business can use to communicate for the sales and marketing of their products and services.	• Appreciate and respect the use of communication services for efficiency in the business environment.
54. International Calls	• International calls are calls made to other countries or between two countries. • How calls are done and costs involved in making international calls	• List the benefits and disadvantages of international call	• Appreciate and respect the use of communication services

Making A living Grade 7.indd 64 02/08/2019 11:30 AM

Benchmark	**7.2.3.2.** Discuss how the provision of telecommunication services contribution to the success of business operations.		
55. Telecommunication corporation	• Communication networks • Telecommunication postal services	• Investigate and identify telecommunication companies that business can use to communicate for the sales and marketing of their products and services.	• Appreciate and respect the use of communication services for efficiency in the business environment
56. Logistics	• Transportation and delivery of business goods and services	• Investigate and identify logistic companies that business can use to communicate for sales, marketing and delivery of their goods and services	• Appreciate the logistics in business
57. Business communication systems	• Business systems used in the business environment • Business • Business communication system such as emails, telephone and mobile phone applications	• Discuss and list how different business systems contribute to the effectiveness and efficiency of the business.	• Appreciate the contribution of business communication systems
Benchmark	**7.2.3.3.** Examine the role Postal Services play in the success or failure of business operations.		
58. Postal services contributions to Individuals	• Postal services benefits to the success or failure of individual business activities	• Discuss and describe the contributions of postal services to the successes or failures of business operations.	• Appreciate and value the role of postal services and its contribution to business operations
59.Postal service contributions to Businesses	• Postal services benefits to business operations and the success or failure of individual business activities	• Discuss and describe the contributions of postal services to the successes or failures of business operations	• Appreciate and value the role of postal services and its contribution to business operations
60. Postal service contributions to Government and Non-Government Organizations (NGOs)	• Postal services benefits to success or failure of government and non-government business activities	• Discuss and describe the contributions of postal services to the successes or failures of business operations	• Appreciate and value the role of postal services and its contribution to business operations.
Content Standard	**7.3.1.** Students will be able to examine and appreciate the importance of safety standards when working with wood, metals, and plastics.		
Benchmark	**7.3.1.1.** Identify and define basic safety standards when working with wood, metals and plastics.		
61. Safety when working with resistant materials (wood, metals and plastics)	• Safety in the aspects of environment, equipment and procedures when working with resistant materials • Color coding in health and safety	• Identify and discuss safety within the working environment, with equipment and procedures • Identify the color coding used in health and safety	• Responsible with safety • Value safety and health procedures for self and others.

Making A living Grade 7.indd 65 02/08/2019 11:30 AM

62. Characteristics of resistant materials (wood, metals and plastics) when working	• Risk assessment when working with resistant materials • Risks, dangers and selection of protective gear • Protection when working with resistant materials	• Conduct a risk assessment • Identify and discuss with reason risks, dangers, and protective gear • Discuss protection when working with resistant materials	• Responsible risk assessment • Value own and others safety
63. Hazards and Protective gear when working with resistant materials	• Characteristics of resistant materials - Types - Function - Suitability - Marketability	• Research and present findings on characteristics of resistant materials	• Responsible research and reporting • Value new knowledge learnt in course of research.
Benchmark	**7.3.1.2.** Evaluate the basic safety standards in terms of their effectives and compliance in preventing accidents resulting from work associated with wood, metals, and plastics. **7.3.1.3.** Examine ways of improving the wood, metals, and plastics work safety standards to avoid workplace accidents.		
64. Traditional and modern technology and impacts	• Traditional and modern technology and impacts • Tools used in traditional and modern technology • Design problems and solutions of traditional and modern technology	• Compare and contrast traditional and modern technology • Identify tools used in traditional and modern technology • Identify with reason design problems and solutions of the traditional and modern technology	• Value knowledge and respect technology that have positive impacts on people's lives • Appreciate technology • Appreciate culture that influences design
65. Elements of design and the design process	• Elements of design (line, shape, form, space, colour, texture, balance) • The design process (planning, making, marketing, evaluating)	• Identify and practice the elements of design • Research the design process and identify the steps at each stage	• Appreciate elements of design in designing • Value creativity and imagination
66. Tools to design and make products	• Types of tools • Proper tools for use with resistant materials	• Identify correct names and functions, use and care of each tool	• Value knowledge of tools, their proper uses and care

Making A living Grade 7.indd 66 02/08/2019 11:30 AM

Content Standard	**7.3.2.** Students will be able to analyse the factors that influence design decisions relating to production design ideas and solutions.		
Benchmark	**7.3.2.1.** Analyse the factors that influence creative design and the functional modeling of products.		
67. Innovation and design	• Innovation and design • Creativity and elements of design	• Study made products and innovate new design • Creative design with the elements of design	• Appreciate creativity through product design • Appreciate the beauty of innovation
68. Forms of materials	• Products made from resistant material • Assess suitability of materials for products	• Study a made product and identify materials used to make it • Create a table displaying the characteristics of different materials	• Value and appreciate products of resistant materials
69. Functions of products	Function of design products considering safety, style, marketability	• Define basic factors at each stage of product design • Apply factors on a made product	• Value and appreciate products of resistant materials • Appreciate the attention to details of products
Benchmark	**7.3.2.2.** Identify and analyse factors affecting the design and production of solutions, and make a report.		
70. Factors affecting design	• Factors affecting design at different stages for product function (role, purpose) - technical (operation, performance, maintenance) - users (function) - economical (cost)	• Identify the ways of presenting the findings • Communicate using written, graphical (diagrams) verbal forms of presentation	• value and respect knowledge of designing of product

Making A living Grade 7.indd 67 02/08/2019 11:30 AM

66: Means of communication used in informal business sector	• Means of communication used in informal business sector • Purpose of means of communication used in business in informal sector	• Explain means of communication and how they assist business operations in formal business sector. • Explain the purpose of the type of communication used.	• Appreciate and value the importance of communication in business operations
Benchmark	**6.2.3.2.** Examine how communication services contribute to the successes of business operations in the formal and informal business sectors.		
Lesson No.& Title	**Knowledge**	**Skills**	**Attitudes/Values**
67: Importance of Government Communication services to businesses	• The importance of postal services to businesses • The importance of telecommunication services to businesses • The importance of national information and communication services to businesses	• Explain the importance of postal services to businesses • Explain the importance of telecommunication services to businesses • Explain the importance of national information and communication services to businesses	• Appreciation of the importance of postal services, telecommunication services and national information and communication services to businesses
68 and 69: Case Study- A simple case study of how government communication services contribute to the successes of business operations	• A simple case study of how (a) Postal services contribute to the successes of business operations (b) Telecommunication services contribute to the successes of business operations	• Explain how postal services contribute to the successes of business operation • Explain how telecommunication services contribute to the successes of business operations.	• Appreciation of how postal services, telecommunication services and national information and communication services contribute to the successes of business operations
Benchmark	**6.2.3.3.** Identify and discuss basic government communication services as a means of communication in business		
Lesson Title & No	**Knowledge**	**Skill**	**Attitudes/Values**
70: Importance of different communication means in business	• The different communication means in business • Importance of these communication means in business	• Identify and list the different communication means in business • Explain the different communication means in business • Identify and explain the Importance of these communication means in business	• Appreciation of the importance of different communication means in business
71: Means of Communication in formal business sector	• The description of formal business sector • The means of communication used in formal sectors	• Explain what formal business sector is • Identify and list different means of communication used in formal sector	• Appreciation of the knowledge of different means of communication used in formal sector

Making A living Grade 7.indd 68 02/08/2019 11:30 AM

72: Means of Communication in informal business sector	• Written (word) and Graphic (diagrams, pictures) • Written and verbal communication	• Identify the techniques/ skills used in the different stages of product design with the appropriate tools for each stage	• Responsible and confident communication of findings of design brief
Benchmark	**7.3.2.3.** Apply decision making skills in the designing of a production solution.		
73. Decisions in design and decision making	• Informed decision on product design • Informed decision on making product solution • timeline to make product	• Make decisions on the design brief presentation	• Informed decision on product design • Informed decision on making product solution • timeline to make product.
74. Technical skills In making model	• Selection of suitable material to make model of product • Technique and tools selection	• Select suitable material to use for the product • Select techniques and tools to make product	• Selection of suitable material to make model of product • Technique and tools selection
75. Evaluating models	Product evaluation - design, style. - Safety, function, material suitability, cost, maintenance)	• Evaluate product using checklist • Make recommendations for possible changes	• Confidence in making wise decisions
Content Standard	**7.3.3.** Students will be able to identify and demonstrate safety and hygiene standards in the home when dealing with food and clothing		
Benchmark	**7.3.3.1.** Discuss safety standards, including food and kitchen hygiene when preparing food, and in the handling of clothing.		
76. Safety and hygiene in the home	• Safety standards in the home • Personal Hygiene and conscious body habits		
77. Food and kitchen hygiene	• Kitchen Hygiene e.g. general cleaning, waste disposal, pests and pest control. • Food hygiene e.g. handling of foods, food borne diseases,	• Define kitchen hygiene • List risks and benefits of keeping kitchen hygiene	
78. Safe and hygiene practices for food storage and preservation	• Importance of maintaining food hygiene when handling food from the kitchen to the table • Hygienic methods of food preparation • Hygienic handling of equipment in food preparation • Safe and hygienic practices when storing raw and cooked food • Safe and hygienic practices when preserving food	• Identify the importance of food hygiene in the kitchen • Identify hygienic methods of food preparation • Discuss the hygienic handling equipment in food preparation • hygienic food storage practices • Discuss safe and hygienic food preservation practices	• Considerations on the importance of food hygiene to others and self • Considerations on the importance of food hygiene to others and self

Making A living Grade 7.indd 69 02/08/2019 11:30 AM

Benchmark	**7.3.3.2.** Identify safety standards when using equipment in the home.		
79. Equipment in the home and their uses	• Equipment found in the home and their uses • Cleaning equipment • Care and maintenance of equipment	• List types of equipment found in the home and classify them according to their uses • Discuss ways of care and maintenance of equipment	• Appreciate and value the technology evident in the types of tools and equipment in the home
80. Care and maintenance of equipment and tools	• Storing and Preserving food • Equipment to store and preserve food	• Research equipment of food storage and food preservation	• Appreciate and value the technology involved in the storage and preservation of food for later consumption
81. Tools and equipment for food preservation and storage	• Storing and Preserving food • Equipment to store and preserve food	• Research equipment of food storage and food preservation	• Appreciate and value the technology involved in the storage and preservation of food for later consumption
Benchmark	**7.3.3.3.** Create plans to manage, maintain, and store equipment and clothing in the home.		
82. Care of clothes	• Types of clothing items • Care of clothes • Clothes label	• Identify and correctly name the types of clothing items worn • Discuss ways of caring for clothes using the labels on clothes to guide	• Enjoy naming types of clothing items • Appreciate the knowledge of caring for clothes
83.Clothing label	• Basic sewing equipment in the home	• Identify basic sewing equipment	• Appreciate basic sewing equipment
84. Basic sewing equipment Basic Stitches	• The basic stitches (Tacking, running, back stitch and hemming)	• Name the basic stitches and demonstrate how to sew them	• Appreciate and value the knowledge of basic sewing stitches
Content Standard	**7.3.4.** Students will be able to plan, organize, and design a home using available resources.		
Benchmark	**7.3.4.1.** Use planning, organizing, and designing processes to organise and improve a home.		
85. Identify types of resources in the home	• Resources in the home (time, money, energy,) Household tasks and responsibilities that support life	• Identify and discuss the resources in the home that supports life as an individual and in the family	• Appreciate and value resources in the home
86. Managing resources in the home	• Managing resources to support life in the home • Planning and organizing resources	• Identify ways of managing time, money and energy	• Respect for others and their work • Work cooperatively with others
87. Benefits of resource management in the home	• Benefits of managing resources (good rest, save time to do other things, save money)	• Identify and discuss the benefits of managing resources in the home	• Appreciate and value the benefits of managing and planning resources

Making A living Grade 7.indd 70 02/08/2019 11:30 AM

Benchmark	**7.3.4.2.** Identify and describe the factors that influence the development of a plan for arranging and decorating a home.		
88. Equipment in the home and their uses	• Resources in the home (time, money, energy,) Household tasks and responsibilities that support life	• Identify and discuss the resources in the home that supports life as an individual and in the family	• Appreciate and value resources in the home
89. Care and maintenance of equipment and tools	• Managing resources to support life in the home • Planning and organizing resources	• Identify ways of managing time, money and energy	Respect for others and their work • Work cooperatively with others
90. Tools and equipment for food preservation and storage	• Storing and Preserving food • Equipment to store and preserve food	• Research equipment of food storage and food preservation	• Appreciate and value the technology involved in the storage and preservation of food for later consumption
Benchmark	**7.3.4.3.** Examine factors that influence decisions about home maintenance using available resources.		
91. Art of clothing as grooming	• Choice of clothing in grooming • Understanding elements of design in choosing clothes (line, direction, size, shape, texture, value and color)	• Discuss choice of clothes and dressing up as a means of grooming • Discuss the elements of design when choosing clothes	• Value and appreciate the knowledge behind choosing clothes • Appreciate elements of design to choose clothes when dressing up
92. Reasons for wearing clothes	• Function of clothing • Factors to consider when choosing clothes (personality, way of life, economic status, figure type, coloring)	• Identify and discuss the reasons for wearing clothes • Discuss the factors to consider when choosing clothes	• Value and appreciate the function of clothing
93. Ward robe planning	• Dressing (clothes and accessories-bag, belt, scarf, hat, shoes, jewelry) • Considerations (what will you wear, what goes with it, where will you wear it to?, is it affordable, color choice, figure type)	• Identify and discuss the elements to consider when choosing personal wardrobe • Identify dressings for different occasions	• Value and appreciate self- image and appropriate dressing
Content Standard	**7.3.5.** Students will be able to comprehend and apply safety standards and ethics when using the media, digital devices, and technology		
Benchmark	**7.3.5.1.** Examine the importance of comprehending and applying safety standards when utilizing computers and other digital devices		
94. Safety for storage and using computers	• Safe storage of digital devices (lighting, ventilation, cooling system, space, power connections) • Safe usage of computers	• Observe and recognize the safety measures in storing digital devices • Demonstrate correct and appropriate use of computers	• Value and appreciate technology • Value digital devices and care for them
95. Safety when using digital devices	• Safe handling of digital devices • Following user manuals of devices	• Demonstrate the safe use of digital devices • Read and understand user manuals of digital devices	• Value and appreciate the manufacturers intent of digital devices

Making A living Grade 7.indd 71 02/08/2019 11:30 AM

96. Computer, ethics and social values	• Computers in society • Morality of using computers	• Evaluate the use of computers in society • Assess the moral standards in using computers	• Value and appreciation of computers in use in society
Benchmark	**7.3.5.2.** Give reasons for abiding by basic ethics when using digital devices and digital applications in the media.		
97. Ethics when using digital Technology	• Privacy of personal information (not using technology to harm other people, use computers with authority, respect other people's work)	• Interpret and discuss technology ethics • Apply ethics when working with computers	• Value and appreciate technology ethics • Encourage respect for others and their work
98. Abuse of digital technology	• Respect of privacy as an obligation • Respect people , race, gender, religion and cultural groups in the media (discrimination)	• Discus the protection of privacy • Explore the issues associated with the abuse of digital technology and the media • Recommend solutions to prevent digital technology abuse	• Demonstrate the value and appreciation of digital technology
99. Types of computer applications	Computer applications - business - graphics and multi media - home/personal/education - communication Uses of a computer in different fields - business - banking - insurance - education - marketing - healthcare - engineering design - military - communication - government	• Research and report on the different computer application • Discuss use of computers in different fields	• Explore creativity through product design • Appreciate the use of computers in fields that makes processes convenient
100. Using multimedia	• What is multimedia • Uses of multimedia • Different types of applications used in multimedia	• Define multimedia • Explore and use the different applications used in multimedia	• Demonstrate the value and appreciation of multimedia and its applications

Making A living Grade 7.indd 72 02/08/2019 11:30 AM

Content Standard	**7.3.6.** Students will be able to establish that there is a variety of computers for a variety of purposes.		
Benchmark	**7.3.6.1.** Identify the range of functions and purposes of computers and explain their uses.		
101. Parts of a computer	Hardware consist of: -Input-keyboard, mouse, scanner, Output-monitor, printer, Memory-Primary(-computer memory), Floppy disk, CD, DVD, Flash drive	• Study a computer and identify the basic hardware components of a computer	• Encourage respect in classroom environment • Encourage respect for equipment
102. Functions of a computer	Four basic functions of a computers: - take input - store data - processing data - output information	• Identify and describe the basic functions of a computer	• Encourage respect for equipment • Appreciate creativity
103. Putting on a computer	• Steps to putting on a computer • The Desktop • Features of my computer	• Follow the correct steps to put a computer	• Explore emotions through design development
104. Shutting down a computer	• Steps to shutting down a computer	• Follow the correct steps to shut down a computer	• Explore emotions through design development
Benchmark	**7.3.6.2.** Examine the different purposes of owning and using computers. **7.3.6.3.** Analyse the use of computers by data processing and management organisations.		
105. The Keyboard	• The keyboard • Keys and functions - Alphanumeric Keypad/ Special - function Keys - Function Keys - Cursor Movement Keys - Numeric Keypad • Move mouse , Click mouse , Double click mouse	• Identify the keys of a keyboard and their functions • Discover and use a mouse	• Encourage respect for equipment
106. Word Processing	• Word Processing Skills	• Create, open, close and save a document	• Encourage respect for equipment and functions
107. Saving a document	• Storage devices • Saving a document	• Identify storage devices • Save a document	• Encourage respect for equipment and functions.
108. Lesson demonstration on basic computer operations	• Computer specialist to demonstrate basics on how to use and operate a computer	• Demonstrate basic computer operations	• Appreciate the demonstration of basic computer operations

Making A living Grade 7.indd 73 02/08/2019 11:30 AM

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; and
- 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

Making A living Grade 7.indd 74 02/08/2019 11:30 AM

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
7.1.1. Students will be able to analyse the different tree cropping techniques and associated management practices.	**7.1.1.1.** Examine cultivation practices of different types of tree crops **7.1.1.2.** Analyse the different tree cropping techniques (for example, plant propagation) and evaluate their management.

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.

Making A living Grade 7.indd 75 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 76 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 77 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 78 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 79 02/08/2019 11:30 AM

Grade Seven Yearly Assessment Overview

This is an assessment task overview planned for teachers in Grade seven 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 7 Suggested Assessment Tasks outline

Week	Strand	Unit	Content Standard	Benchmarks	Suggested Specific Assessment Tasks
Term 1					
2	Crop and Livestock farming	Crop farming	**7.1.1**	**7.1.1.1**	Illustrate a tree crop and label its parts
3	Crop and Livestock Farming	Crop farming	**7.1.1**	**7.1.1.2**	Choose a tree crop and use a flow chart to describe how it is grown and managed till it matures
4	1.Crop and Livestock Farming	Crop farming	**7.1.2**	**7.1.2.2**	Select a traditional, artificial or biological strategy and explain how you can use it to protect plants.
5	1.Crop and Livestock Farming	Crop farming	**7.1.2**	**7.1.2.4**	Draw a life cycle of an insect and describe the stage when it does the most damage to plants or crops
6	Crop and Livestock farming	Livestock farming	**7.1.3**	**7.1.3.1**	Construct posters of the types of domesticated animals. Write a report on the effectiveness of the mini project
7	Crop and Livestock farming	Livestock farming	**7.1.3**	**7.1.3.2**	Draw digestive and reproductive systems on charts for display Write a 100 word descriptive essay on benefits of raising local and introduced animals
8	Crop and Livestock farming	Livestock farming	**7.1.4**	**7.1.4.1**	Illustrate reproduction cycle of a selected animal based on criteria Construct a poster of a local and introduced animal species and outline its benefits
9	Crop and Livestock farming	Land and water resource management	**7.1.5**	**7.1.5.1**	Write a descriptive essay on organic farming methods
10	Crop and Livestock farming	Land and water resource management	**7.1.5**	**7.1.5.2**	Write a descriptive essay on conservation and regeneration practices

Making A living Grade 7.indd 80 02/08/2019 11:30 AM

Week	Strand	Unit	Content Standard	Benchmarks	Suggested Specific Assessment Tasks
Term 2					
2	Crop and Livestock farming	Land and water resource management	**7.1.6**	**7.1.6.1**	Construct a poster on either of the practices and explained each practices
3	Crop and Livestock farming	Land and water resource management	**7.1.6**	**7.1.6.2** **7.1.6.3**	Select a type of marine resource and outline how it is farmed and managed in 2-3 paragraphs
4	Business environment and practices	Satisfying needs and wants	**7.2.1**	**7.2.1.1** **7.2.1.2**	Explain in a few sentences about the importance of having income and wealth
5	Business environment and practices	Satisfying needs and wants	**7.2.1**	**7.2.1.3** **7.2.1.4**	Name the different components of a budget
6	Business environment and practices	Start a business and record keeping	**7.2.2**	**7.2.2.1**	Design a simple exercise book for record keeping of sales and purchases
7	Business environment and practices	Start a business and record keeping	**7.2.2**	**7.2.2.2**	List at least three simple things that can be done when managing a trade store
8	Business environment and practices	Start a business and record keeping	**7.2.2**	**7.2.2.3**	Name common documents used in record keeping for a wholesale
9	Business environment and practices	Business communication services	**7.2.3**	**7.2.3.1**	Name at least two types of services offered by the Telecommunication services
10	Business environment and practices	Business communication services	**7.2.3**	**7.2.3.2**	Describe how Telecommunication Services contributions to the success of business operations

Making A living Grade 7.indd 81 02/08/2019 11:30 AM

Week	Strand	Unit	Content Standard	Benchmarks	Suggested Specific Assessment Tasks
Term 3					
2	Business environment and practices	Business communication services	**7.2.3**	**7.2.3.3**	Write in one paragraph to describe how Telecommunication services contribute to the success of businesses
3	Basic Technology	Introduction to resistant materials	**7.3.1**	**7.3.1.1**	Write safety rules when working with wood
4	Basic Technology	Introduction to resistant materials	**7.3.1**	**7.3.1.2** **7.3.1.3**	Produce samples of elements of design
5	Basic Technology	Introduction to resistant materials	**7.3.2**	**7.3.2.1**	Describe factors affecting design and production of solutions and make a report.
6	Basic Technology	Introduction to resistant materials	**7.3.2**	**7.3.2.2**	List factors that affect designing process
7	Basic Technology	Introduction to resistant materials	**7.3.2**	**7.3.2.3**	Presentation of reports on the factors
8	Basic Technology	Home management	**7.3.3**	**7.3.3.1**	Produce a poster with kitchen safety rules
9	Basic Technology	Home management	**7.3.3**	**7.3.3.2**	Design safety standards when using equipment
10	Basic Technology	Home management	**7.3.3**	**7.3.3.3**	List types of household responsibilities

Week	Strand	Unit	Content Standard	Benchmarks	Suggested Specific Assessment Tasks
Term 4					
2	Basic Technology	Home management	**7.3.4**	**7.3.4.1**	Produce a poster with kitchen safety rules
3	Basic Technology	Home management	**7.3.4**	**7.3.4.2**	Discuss house management strategies
4	Basic Technology	Home management	**7.3.4**	**7.3.4.3**	Describe meal planning strategies
5	Basic Technology	Home management	**7.3.4**	**7.3.4.3**	Demonstrate washing and ironing of clothes
6	Basic Technology	Media and communication	**7.3.5**	**7.3.5.1**	List safety standards for computer hardware
7	Basic Technology	Media and communication	**7.3.5**	**7.3.5.2**	Identify the basic parts of a computer and the functions.
8	Basic Technology	Media and communication	**7.3.5**	**7.3.5.2**	Identify and practice the basic computer processes in creating and saving a document.
9	Basic Technology	Media and communication	**7.3.6**	**7.3.6.1**	Produce a poster with parts of computer and label its parts
10	Basic Technology	Media and communication	**7.3.6**	**7.3.6.2** **7.3.6.3**	Create and save a document

Making A living Grade 7.indd 82 02/08/2019 11:30 AM

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).

Making A living Grade 7.indd 83 02/08/2019 11:30 AM

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:					

Making A living Grade 7.indd 84 02/08/2019 11:30 AM

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 80%	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	60 - 79%	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	40 - 59%	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 – 39%	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.

Making A living Grade 7.indd 85 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 86 02/08/2019 11:30 AM

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 evidence 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					

Making A living Grade 7.indd 87 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 88 02/08/2019 11:30 AM

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 Grade 7.indd 89 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 90 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 91 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 92 02/08/2019 11:30 AM

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

Making A living Grade 7.indd 93 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 94 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 95 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 96 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 97 02/08/2019 11:30 AM

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)

Making A living Grade 7.indd 98 02/08/2019 11:30 AM

- 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

Making A living Grade 7.indd 99 02/08/2019 11:30 AM

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- 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)
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- 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

Making A living Grade 7.indd 100 02/08/2019 11:30 AM

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 7

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)**					

Making A living Grade 7.indd 101 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 102 02/08/2019 11:30 AM

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.

Making A living Grade 7.indd 103 02/08/2019 11:30 AM

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