

# **Making a living**

**Upper primary  
Teachers Guide  
2003**



Papua New Guinea  
Department of Education

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**Issued free to schools by the Department of Education**

Published in 2003 by the Department of Education, Papua New Guinea

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Developed by the Curriculum Development Division of the Department of Education

ISBN 9980-930-69-1

**Acknowledgements**

The Upper Primary Making a Living Teachers Guide was prepared by the Curriculum Development Division of the Department of Education and was coordinated and written by Mrs. Rachael Sivatevi Konaka with assistance from organisations and trial schools acknowledged below.

**Organisations**

The National Department of Education is grateful to individuals in the following organisations who assisted in the development of this Teachers Guide

World Wide Fund for Nature — Papua New Guinea

Research Conservation Foundation

Community Development Initiative

Conservation Melanesia

University of Goroka

Division of Education – Morobe

Division of Education – North Solomons

Division of Education – Oro

**Trial Schools**

The National Department of Education acknowledges the valuable contribution of staff and students in the following schools.

Malasang Primary School — North Solomon's Province

Tinputz Primary School — North Solomon's Province

Saposa Primary School — North Solomon's Province

Lonahan Primary School — North Solomon's Province

Hamatana Primary School — North Solomon's Province

Popondetta Primary School — Oro Province

Resurrection Primary — Oro Province

Agenehambo Primary — Oro Province

Igora Primary School — Oro Province

Saint Paul's Primary School — Morobe Province

Saint Mary's Primary School — Morobe Province

Saint Martins Primary School — Morobe Province

Butibam Primary School — Morobe Province

Markham Road Primary — Morobe Province

Huonville Primary School — Morobe Province

Agugu Primary School — Simbu Province

Wandi Primary School — Simbu Province

Goilanai Primary School — Milne Bay Province

Naura Primary School — Milne Bay Province

This document was developed with the support of the Australian Government through the Curriculum Reform Implementation Project.

# Table of Contents

|   |    |
|---|----|
| Introduction .....                        | 1  |
| Key features of Making a Living .....     | 4  |
| Elaboration of learning outcomes .....    | 12 |
| Units of work .....                       | 37 |
| Teaching and learning strategies .....    | 59 |
| Program planning .....                    | 67 |
| Assessment, recording and reporting ..... | 71 |
| Resources .....                           | 76 |
| Glossary .....                            | 78 |
| Appendix (Time allocations) .....         | 79 |

## **Inservice Units**

A set of inservice units have been written to support the implementation of the upper primary reform curriculum.

These units are:

- self-instructional, so you can access them according to your needs when and where suits you,
- self-paced, so you can study at your own pace,
- outcomes-based, so you can experience outcomes-based approaches to education,
- based on adult learning principles of learning, doing, sharing and reflecting,
- practical and related to your daily work as a teacher or a supervisor,
- collegial, so you can learn together in small groups, whole school or cluster settings,
- accredited with PNG Education Institute, so you can improve your qualifications,
- designed to promote best practice, so you can effectively implement the curriculum,
- applicable across Upper Primary Syllabuses.

These units integrate principles contained in the *National Curriculum Statement* (2002) and the *National Assessment and Reporting Policy* (2003).

These units can be used in conjunction with this Teachers Guide.

## Secretary's Message

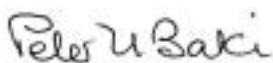
Primary teachers are generalist teachers and this Teachers Guide is for all teachers in Upper Primary schools. It is one of a set of seven guides written for teachers of Upper Primary, Grades 6-8.

The Upper Primary Syllabuses identify the learning outcomes. The Teacher Guides give more information about what to teach and describe ways of implementing the Syllabuses. The Teachers Guides are supported by the Inservice Units that have been written to assist the implementation of the Upper Primary Syllabuses and provide valuable information about teaching. I also encourage teachers to work closely with members of their school communities to ensure that local community needs are met.

Important reforms to our education system will only be successful with the support and understanding of teachers. Every Teachers Guide contains detailed information about appropriate subject content, a broad range of ideas and strategies to help teachers use and understand the subject Syllabuses. Each guide is written for a particular subject but many of the ideas and strategies can be used with different subjects or when using an integrated approach to teaching and learning.

Teachers should read each guide carefully and become familiar with the content of each subject as specified in the Elaborations section in each guide.

I encourage teachers to try out the ideas and strategies that they believe will be effective in their schools with their students. Teachers have the right to modify and amend these ideas to suit their local circumstances.



Peter M. Baki  
Secretary for Education

# Introduction

## Purpose

The Teachers Guide is to be used in conjunction with the Making a Living Syllabus and other Teachers Guides in Upper Primary. The main purpose of the Teachers Guide is to help you to implement the Making a Living Syllabus in Upper Primary. It provides you with information and processes to:

- use the elaborations on pages 12–36 to identify relevant content and contexts,
- develop units of work or projects relevant to your students' needs, interests and social and economic opportunities,
- select appropriate teaching and learning strategies,
- plan a school based program suitable to your school,
- plan and conduct assessment to monitor students learning and achievement of learning outcomes.

## How to use the Teachers Guide

When you receive this book, you need to do the following:

- read it carefully and get the grasp of the flow of the content,
- read it carefully so that you become familiar with the Strands, the Substrands, the processes and skills, the Elaborations of learning outcomes and the teaching and learning strategies,
- identify specific projects based on the 10 learning outcomes for Grades 6, 7 and 8,
- consider how to use the information to develop your own programs and units of work.

Some options for developing programs include:

- teaching one of the sample units of work from a particular Strand,
- using the sample units of work as a guide to develop your own units of work relevant to local contexts,
- using the sample unit of work as a guide to develop integrated units of work with other subject outcomes.

## Nature of Making a Living in Upper Primary

Making a Living is a new subject that provides students with essential life skills and knowledge to become self-reliant and improve their living standards. The subject integrates relevant skills in Agriculture, Commerce and Basic Technology that are useful for students to live productive lives in their communities.

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 human needs in a variety of contexts,
- work in a diverse range of learning environments,
- develop necessary skills and knowledge to generate and maintain an income,
- become active and productive members of the community,
- implement specific techniques and processes to enable them to manage a range of resources,
- undertake practical and real life projects that focus on developing economic independence,
- work towards improving their quality of life.

## **Making a Living Syllabus**

The Syllabus provides a framework for you to develop your own teaching and learning programs and develop appropriate assessment, recording and reporting methods. The course content is written as learning outcomes and makes explicit what students must know, do and apply in a range of situations. It describes a continuum of learning across Grades 6, 7 and 8.

The learning outcomes are organised under three Strands:

- Managing Resources,
- Better Living,
- Community Development.

In addition to these conceptual Strands, the subject incorporates a set of processes and skills. These are

- investigating,
- planning and designing,
- making or producing,
- marketing,
- evaluating.

In addition to these processes and skills, Making a Living promotes the development of a range of attitudes and values. These include:

- a sense of responsibility and respect for other individuals and the environment,
- acceptance of and respect for others' opinions and beliefs,
- personal work ethics, responsibility, initiative, commitment, honesty, dedication,
- stewardship and concern for others,
- developing a sense of pride in achievements.

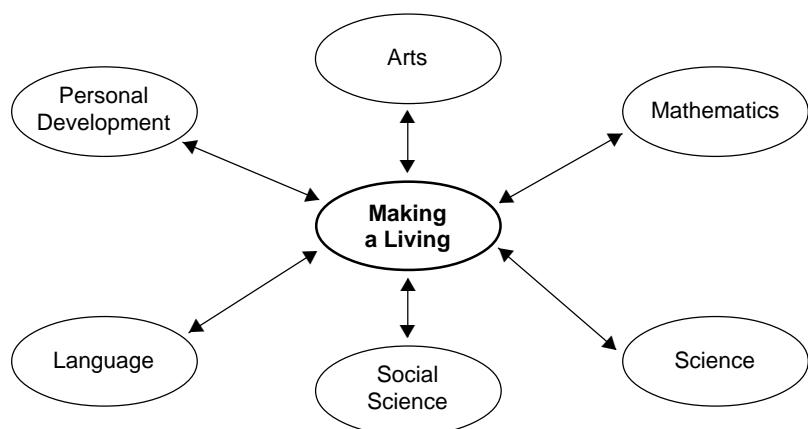
## Links with Elementary, Lower Primary and Secondary

Making a Living builds upon the concepts and process in Environmental Studies and Community Living in Lower Primary and sets a foundation for technology subjects in secondary schools. The basic practical skills enable students to be prepared for further technical training in technical vocational schools.

| Elementary          | Lower Primary         | Upper Primary   | Secondary  |
|---------------------|-----------------------|-----------------|--|
| Culture & Community | Environmental Studies | Making a Living | Home Economics<br>Community Living<br>Business Studies<br>Technology |

## Links with other subjects

Making a Living provides opportunities for teachers to plan integrated units of work using relevant outcomes from other subjects. Integration provides opportunities for students to integrate ideas, knowledge and skills from other subjects to make learning more meaningful and relevant to real life situations.



## Key features of Making a Living

Making a Living provides practical learning experiences for students to acquire practical knowledge, skills, attitudes and values. These will assist students to become self reliant, innovative and use local resources sustainably to improve their quality of life and contribute meaningfully to their local community and society. Understanding the following key features will enable you to effectively teach Making a Living in the schools:

- curriculum principles,
- key concepts organised into Strands and Substrands,
- processes and skills.

### Curriculum principles

The curriculum principles are described on page 4 to 6 of the Syllabus. When planning learning and assessment for students, you need to consider how you will apply these principles in a classroom situation.

### Bilingual education

In practice, this means you will provide opportunities for students to:

- demonstrate their knowledge, skills and attitudes in English and vernacular,
- speak and write in many different situations for different purposes using English and vernacular.

### Nation building and national unity

In practice, this means providing opportunities for students to:

- promote Papua New Guinean national identity through production of home grown products,
- undertake and develop local enterprising activities,
- investigate opportunities for farming traditional and indigenous crops and animals,
- produce local handicrafts and participate in cultural activities within the community.

### Sustainability

In practice, this means the teacher should provide opportunities for students to:

- develop an appreciation of Papua New Guinea's unique environmental diversity,
- participate in activities to protect, conserve and manage resources in a sustainable way,
- develop relevant skills, knowledge and attitudes to identify and address ecological and economic problems and issues,
- take actions to improve and sustain environments, food production and economic activities in Papua New Guinea.

## Catering for diversity

In practice, this means providing opportunities:

- for all students, regardless of gender, ability, disability, ethnicity, socioeconomic circumstances or locations to be involved in the learning,
- for students to appreciate and celebrate diversity,
- to promote unity and a sense of belonging together.

## Developing networks and partnerships

It is essential for teachers and students to establish a range of networks and partnerships within and outside of communities to exchange information and skills. In practice, this means providing opportunities for students to:

- develop and maintain sound working relationships with a range of community members and groups,
- develop an awareness of the range of relevant local, national and international organisations, and establish contact with organisations and individuals that can provide relevant information and other resources.

## Key concepts, processes and skills

The content of Making a Living is organised into three Strands and three Substrands. Each Substrand is expressed in learning outcomes, relates to a particular concept, and is developed across Grades 6, 7 and 8. This continuum of learning outcomes shows the progression from Grade 6 through to Grade 8. Within each Strand, students will be applying the process of investigating, planning and designing, making or producing, marketing and evaluating.

| Strands   | Concepts  | Making a Living Processes and Skills  |
|---|---|---|
| <b>Managing resources</b><br>Sub-strand: Land and water<br>Sub-strand: Environment<br>Sub-strand: Crops and animal management                   | Sustainability<br>Conservation and protection<br>Food security                                  | The following processes and skills apply to all Strands.<br><br>Investigating |
| <b>Better living</b><br>Sub-strand: Healthy living<br>Sub-strand: Care and management<br>Sub-strand: Wise consumer<br>Sub-strand: Making things | Nutrition and hygiene<br>Safety and management<br>Money management<br>Creativity and innovation | Planning and designing<br><br>Making or producing                             |
| <b>Community development</b><br>Sub-strand: Knowing communities<br>Sub-strand: Communication<br>Sub-strand: Community projects                  | Relationships<br>Public relations<br>Social and economic development                            | Marketing<br><br>Evaluating   |

### **Strand: Managing resources**

In this Strand students learn that people depend on the environment for food, water, shelter and clean air. They understand and value natural resources and learn ways of managing land and water resources in a sustainable way that benefits people and the environment. Students learn principles and techniques of managing land to increase the quality and quantity of food production for their own consumption or for sale. There is a clear focus upon concepts of ecological and economic sustainability. They undertake environmentally friendly activities to protect and conserve the environment.

The Strand of Managing Resources incorporates the following Substrands:

- Land and water management,
- Environment,
- Crops and animal management.

#### **Substrand: Land and water management**

In this Substrand students appreciate the importance of land and water resources to meet basic human needs. Land resources refer to all resources on land such as plants, animals and soil. Water resources refer to resources found in the ocean, creeks, rivers and lakes. Students will:

- develop understandings and appreciation of the importance of land and water in supporting all forms of life,
- consider threats to the resources and the consequences of mismanagement of land and water,
- identify relevant and local land and water resources and demonstrate how to use and manage these wisely,
- plan and apply sustainable resource management projects to benefit individuals and community.

#### **Substrand: Environments**

In this Substrand students learn about the environment in which they live and apply appropriate practices to conserve and protect the environment. This includes the terrestrial, marine, wetlands as well as the built environment. Students will:

- observe consequences when an element of the local environment is affected through the loss of habitats,
- participate in activities to reduce, reuse and recycle waste to improve the environment,
- understand ecological systems of an environment and how to conserve and protect these systems,
- apply environmentally friendly actions to care for the environment.

**Substrand: Crops and animal management**

In this Substrand students learn about the importance of farming crops and animals for their own consumption and sale. Crops include vegetables, tree crops. Animals include both land and water animals. Students will:

- develop understandings about the importance of improving food production,
- apply appropriate methods for crop and animal production suitable to local conditions,
- apply appropriate crop and animal management practices,
- plan, design and implement crop and animal projects to generate income,
- develop understandings of appropriate food processing and preservation practices.

**Strand: Better living**

In this Strand students develop the essential skills and knowledge for effective management of time, money, labour and resources to achieve a safe, healthy and productive lifestyle. The Strand focuses on food preparation to meet nutritional requirements, money management and promotes creativity and innovations. Students develop problem solving, decision-making skills and apply these in practical and real life situations to improve their standard of living. The Strand of Better Living incorporates the following Substrands:

- Healthy living,
- Care and management,
- Wise consumer,
- Making things.

**Substrand: Healthy living**

In this Substrand students develop best safe practices for maintaining and promoting a healthy way of living. Students understand the importance of nutrition and use appropriate methods to prepare food for personal consumptions or to generate income. Students will:

- be aware of safety practices at home, school and at the work place,
- maintain personal cleanliness and safety at home, school or within the community,
- apply traditional and introduced methods of food preparation, processing and preservation,
- plan and prepare nutritious meals for personal consumption or for sale.

**Substrand: Care and management**

In this Substrand students investigate areas within the school and home that need improvement and carry out appropriate actions to create a safe and pleasant place in which to live. Students will be involved in activities to:

- improve physical aspects of the school environment,
- maintain cleanliness at home and at school,
- repair and maintain parts of buildings such as the broken walls, steps, doors,
- repair and maintain furniture such as tables, beds, chairs,
- apply regular maintenance on other natural and built environments in which they work, live and learn.

**Substrand: Wise consumer**

In this Substrand students develop skills of effective money management and are able to make informed decisions about goods and services available for them to access.

Students will:

- develop an understanding about their rights and responsibilities as consumers,
- understand and apply effective money management skills, record keeping and budget planning,
- identify organisations that provide goods and services which can be accessed and used wisely,
- appreciate and develop an understanding of the importance of marketing, communication and technological skills in managing an enterprise.

**Substrand: Making things**

In this Substrand students identify and use a range of appropriate materials, techniques, tools and equipment to create and produce an item or a product that benefits the individual or community. Products could include dress, bilum, coffee table, curtains, pillowcases and baskets.

Students will:

- identify a range of materials suitable to make an item,
- handle a range of tools and equipment,
- follow instructions and apply techniques to create or adapt a product,
- apply appropriate skills in sewing, woodwork and metal work.

**Strand: Community development**

In this Strand students learn how to contribute to, live and work within the community. Students create awareness to the community about the services available to them and assist in democratic decision-making processes most appropriate for the community. Students will value their school property and develop a sense of ownership. Students learn the necessary skills to liaise and actively participate in community-based projects to build good working relationships. The Community Development Strand incorporates the following Substrands:

- Knowing communities,
- Communication,
- Community projects.

**Substrand: Knowing communities**

The Substrand will help the students to become aware of the social and physical aspects of their community. They will consider how they use their strengths and capabilities to benefit their community.

The students will be able to:

- develop competence and confidence in themselves as they share their talents and skills to benefit their community,
- appreciate, respect and understand the local culture and beliefs,
- identify common features of the community that benefits the community,
- create a resource of the community,
- identify appropriate actions to promote good working relationships and ways to contribute positively to their community.

**Substrand: Communication**

In this Substrand students effectively communicate culturally and contextually the appropriate information and skills they have accessed and analysed from the community. Students will use communication skills to promote public relationships and create awareness to the community on issues or concerns in the community.

Students will:

- develop effective communication skills,
- use a range of communication mediums,
- facilitate, lobby, advocate and create awareness to promote quality community living,
- develop the skills necessary for establishing effective networking partnerships.

### **Substrand: Community projects**

This Substrand will help students investigate needs and opportunities for improvement in their community. They will take appropriate actions that will encourage the school and the community to participate actively. A community can include a class, school, a village or any special groups. Projects could include income generating activities, health related, cultural, education, law and order, housing or environmental issues.

Students will:

- identify physical aspects of the community that require improvement,
- identify and capitalise on opportunities that bring socioeconomic benefits to the community,
- work with their communities to plan, implement, monitor, and evaluate projects.

## **Processes and skills**

Students will participate in the following processes and skills:

- investigating,
- planning and designing,
- making or producing,
- marketing or using,
- evaluating.

These processes and skills are the essence of Making a Living outlined in the Syllabus on page 9. Teachers will apply these processes and skills when developing units of work.



**Processes**

|                               |   |
|-------------------------------|---|
| <b>Investigation</b>          | <p>An investigation requires students to assess the nature and circumstances of the problems or needs and determine the process or the product. Students gather information to analyse the nature of problems and explore social, economic, technological, ecological or aesthetic factors that contribute to the kind of product or the use of particular techniques.</p> <p>In practice students will:</p> <ul style="list-style-type: none"> <li>• observe and ask questions to gather information from a range of sources</li> <li>• consult a wide range of groups or individuals to provide assistance</li> <li>• conduct a market survey to identify needs and opportunities</li> <li>• conduct interviews to gather evidence</li> </ul> <ul style="list-style-type: none"> <li>• collect and record data</li> <li>• draw conclusions that are supported by evidence</li> <li>• explore viability of potential projects</li> <li>• analyse evidence by selecting, comparing and categorising information</li> <li>• engage in democratic decision-making processes</li> </ul>  |
| <b>Planning and designing</b> | <p>Planning and designing requires students to adapt or create original designs to produce a product. They transfer information gathered through investigation into plans and proposals.</p> <p>In practice students will:</p> <ul style="list-style-type: none"> <li>• generate plans and proposals for creatively solving problems or completing a task</li> <li>• consider options, identify priorities and constraints</li> <li>• experiment with different ways to achieve their aims</li> <li>• choose appropriate resources and equipment</li> <li>• appraise plans and actions</li> <li>• develop criteria to assess how well their intended techniques and products meet the requirements of the problem or tasks</li> </ul> <ul style="list-style-type: none"> <li>• draw graphical representations and use technical language to explain design concepts and production processes</li> <li>• plan activities in a logical sequence and develop action plans</li> <li>• calculate estimated cost and expected income of production</li> <li>• use imagination to consider alternative options when designing a product</li> </ul> |
| <b>Making or producing</b>    | <p>When making or producing, students translate designs and plans into products and processes.</p> <p>In practice students will:</p> <ul style="list-style-type: none"> <li>• work individually or cooperatively to produce quality products for specific purposes</li> <li>• apply appropriate production techniques</li> <li>• use equipment safely</li> <li>• follow specifications of a plan to produce a product</li> <li>• apply care and management techniques appropriate to project</li> <li>• manage time and resources effectively</li> </ul> <ul style="list-style-type: none"> <li>• monitor and control quality in creating products and undertaking processes</li> <li>• adapt ideas and plans in response to constraints and difficulties</li> <li>• produce products to a high standard of quality</li> <li>• apply post harvest techniques in food production</li> <li>• maintain a regular supply of high quality production to meet individual and market needs</li> </ul>  |
| <b>Marketing or using</b>     | <p>Marketing or using requires students to apply marketing strategies to sell their products. Students consider how goods and services that cannot be marketed can be used most effectively.</p> <p>In practice students will:</p> <ul style="list-style-type: none"> <li>• calculate selling prices and keep records of sales</li> <li>• develop and use competitive marketing strategies</li> <li>• advertise and sell products to a targeted audience</li> </ul> <ul style="list-style-type: none"> <li>• calculate cost of production and determine profit</li> <li>• use a range of selling techniques</li> <li>• keep records of production</li> <li>• undertake banking procedures and consider other forms of financing and investments</li> </ul>  |
| <b>Evaluating</b>             | <p>Evaluating requires students to assess and make judgements about the processes, product, projects and report their findings.</p> <p>In practice students will:</p> <ul style="list-style-type: none"> <li>• assess products using assessment criteria</li> <li>• determine whether the products and processes have met the intended outcome</li> <li>• identify success, failures and constraints</li> <li>• make suggestions for improvements in the quality of the product or process</li> </ul> <ul style="list-style-type: none"> <li>• reflect on, consider their initial intentions, plans and actions, and suggest modifications for future improvement of the process and quality of their products</li> <li>• analyse the viability of the project to decide on continuation or possibility of undertaking alternative projects</li> </ul>  |

## Elaboration of learning outcomes

### What are learning outcomes?

Learning outcomes describe specifically what students know and are able to do in each Strand and Grade. The outcomes are broad and can be achieved in any context depending on available resources and expertise.

The learning outcomes and indicators will:

- give teachers the flexibility to write units of work and teaching programs suitable to suit local conditions, available resources and individual student needs,
- guide teachers to select appropriate assessment tasks and assessment criteria,
- help teachers plan and revise their future teaching programs.

### Organisation of Syllabus learning outcomes

The learning outcomes are organised according to Strands and Substrand for each Grade levels. Three Strands are taught across the Grades.

Students are required to achieve 10 learning outcomes for each of the Grades 6, 7 and 8. In the Syllabus, the learning outcomes are numbered according to Strands and Substrands.

Each learning outcome is numbered with three digits, such as 6.1.1. The first number refers to the Grade level, (Grade 6). The second number refers to the Strand (Managing Resources). The third number refers to the Substrand (Land and Water).

### What are elaborations?

Elaborations describe possible content (knowledge, skills and attitudes) and contexts (school environment, resources) that teachers will use to develop learning experiences and assessment. These are suggestions only and are not an exhaustive list. These elaborations provide teachers with examples of what the students need to know and do in order to achieve an outcome.

They assist teachers to choose suitable topics or types of projects they might undertake. All the learning outcomes have been elaborated on pages 12-36.

**Strand:** Managing resources**Substrand:** Land and water

|                                | Grade 6   | Grade 7  | Grade 8  |
|--------------------------------|---|--|--|
| <b>Learning Outcome</b>        | <p><b>6.1.1</b> Investigate the importance of land and water resources and apply appropriate ways of managing these to meet basic human needs</p>   | <p><b>7.1.1</b> Investigate and compare consequences of mismanagement of land and water resources and plan, design and undertake a small project using appropriate management practices</p>  | <p><b>8.1.1</b> Evaluate current practices of land and water resource management to design sustainable resource management projects to generate income</p>   |
| <b>Making a Living Process</b> | <p><b>Investigate:</b> Students can investigate when they:</p> <ul style="list-style-type: none"> <li>• observe and formulate questions about issues</li> <li>• gather information from different sources such as talking with community members, reading papers, and using statistics</li> <li>• identify: <ul style="list-style-type: none"> <li>– basic human needs</li> <li>– land and water resources</li> <li>– how and why land and water resources are important</li> <li>– appropriate ways to manage resources</li> </ul> </li> <li>• conduct a survey on how people use land and water resources and present information to a target audience</li> <li>• engage in a democratic decision making process on the use of resources</li> </ul> | <p><b>Investigate:</b> Students can investigate when they:</p> <ul style="list-style-type: none"> <li>• formulate questionnaires to gather information</li> <li>• seek information from a wide range of groups</li> <li>• compare and analyse evidence</li> <li>• compare consequences of mismanagement</li> <li>• observe and identify appropriate management practices: such as erosion control, mulching, drainage, control of grazing numbers, revegetation and reforestation, water conservation, waste management and marine conservation</li> </ul> <p><b>Plan and design:</b> Students plan and design when they:</p> <ul style="list-style-type: none"> <li>• identify needs and opportunities</li> <li>• list available and necessary resources</li> <li>• develop an action plan for the project</li> <li>• calculate costs of production and estimated income</li> <li>• set up record keeping system</li> </ul> | <p><b>Evaluate:</b> Students evaluate when they:</p> <ul style="list-style-type: none"> <li>• identify and analyse current practices</li> <li>• identify the most appropriate practice for the chosen project</li> <li>• present a justified argument for selected management practices</li> <li>• review plans, techniques and resources</li> </ul> <p><b>Plan and design:</b> Students plan and design when they:</p> <ul style="list-style-type: none"> <li>• identify needs and opportunities</li> <li>• list available and necessary resources</li> <li>• develop an action plan for the project</li> <li>• calculate costs of production and estimated income</li> <li>• set up record keeping system</li> </ul> |

|                       | Grade 6  | Grade 7  | Grade 8   |
|-----------------------|--|--|---|
| Recommended knowledge | <p><b>Land resources</b></p> <ul style="list-style-type: none"> <li>plants such as native vegetation, crops</li> <li>soil, land</li> <li>domestic animals</li> <li>wildlife</li> <li>minerals such as gold, copper, oil</li> <li>forests, swamps, wetlands</li> </ul> <p><b>Water resources</b></p> <ul style="list-style-type: none"> <li>marine life (fish, shellfish, sharks, whales)</li> <li>oceans</li> <li>mangroves</li> <li>coral reefs</li> <li>fresh water such as rainwater, water supply</li> <li>rivers and creeks, swamps, lakes</li> </ul> <p><b>Human needs</b></p> <ul style="list-style-type: none"> <li>food, shelter, water, air, clothing</li> <li>love, protection and safety</li> </ul> <p><b>Importance of resources</b></p> <ul style="list-style-type: none"> <li>support human life</li> <li>source of livelihood</li> <li>valued for a range of purposes such as aesthetic, monetary, ecological</li> </ul> | <p><b>Consequences of mismanagement</b></p> <ul style="list-style-type: none"> <li>loss of biodiversity and ecosystems</li> <li>soil erosion</li> <li>low food production</li> <li>water pollution</li> <li>reduction in availability of resources</li> </ul> <p><b>Mismanagement practices</b></p> <ul style="list-style-type: none"> <li>exploitation such as logging over fishing</li> <li>continuous cropping on a same piece of land</li> <li>dynamite fishing</li> <li>pollution such as inappropriate disposal of waste</li> <li>lack of recycling, reducing and reusing</li> </ul> | <p><b>Current practices</b></p> <ul style="list-style-type: none"> <li>subsistence farming, gardening/fishing</li> <li>improved subsistence farming, gardening</li> <li>commercial farming and fishing</li> <li>terrace farming</li> <li>traditional fishing, hunting and gathering practices</li> </ul> <p><b>Sustainable resource management</b></p> <ul style="list-style-type: none"> <li>permaculture</li> <li>mixed cropping</li> <li>reusing resources</li> <li>conserving resources</li> <li>sharing resources — partnerships</li> <li>marine protected areas</li> <li>organic farming</li> </ul> |

**Substrand:** Environment

|                         | Grade 6  | Grade 7   | Grade 8  |
|-------------------------|--|---|--|
| Learning Outcome        | <b>6.1.2</b> Investigate the consequences when an element of the local environment is affected and suggest possible environmentally friendly actions to care for it  | <b>7.1.2</b> Investigate and undertake practical ways to reduce, reuse and recycle waste to benefit and improve the local environment   | <b>8.1.2</b> Describe and reflect on economical, cultural and ecological values of natural, social and built resources and apply environmentally friendly ways of managing the environment   |
| Making a Living Process | <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>observe and discussing (seeing, hearing, tasting, touching, smelling)</li> <li>identify elements of the natural environment affected</li> <li>compare healthy and unhealthy environments</li> </ul>   | <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>identify types of waste products</li> <li>discuss ways of reducing, reusing and recycling waste products</li> <li>identify biodegradable and non biodegradable waste products</li> <li>explore the nature of products such as what materials are made from</li> <li>find out the source of waste materials</li> <li>compare different packaging materials such as plastics, paper packets, leaves</li> </ul>   | <p><b>Reflect:</b> Students reflect when they</p> <ul style="list-style-type: none"> <li>ask questions about how people value natural, built and social resources and reflect upon their findings</li> <li>develop a criteria for evaluating a quality environment and share it with others</li> <li>identify economic, cultural and ecological values associated with natural, built and social environments</li> </ul>   |
| Recommended knowledge   | <p><b>Elements of the local environment</b></p> <ul style="list-style-type: none"> <li>natural elements plants, animals, air, water, soil, sunlight</li> <li>built elements <ul style="list-style-type: none"> <li>buildings, roads, farms, village, city, hospital, church</li> </ul> </li> <li>social elements friendships, Community groups, family school, clans</li> </ul> <p><b>Consequences when an element is affected</b></p> <ul style="list-style-type: none"> <li>loss of habitats</li> <li>extinction</li> <li>introduced species invading local ecosystems</li> <li>introduced diseases causing destruction of plant and animal species</li> <li>deforestation</li> <li>soil erosion</li> <li>land disputes</li> <li>crime and unemployment</li> <li>health problems</li> <li>introduction and removal of plants and animal such as hybrid plants , cocoa, coconut and animals such as rabbits</li> <li>modifying the environment - farming, reforestation, mining, landscaping</li> </ul> | <p><b>Causes and effects of waste and rubbish products</b></p> <ul style="list-style-type: none"> <li>increase population and food consumption</li> <li>unhygienic conditions causing diseases</li> <li>consumerism</li> <li>excessive packaging</li> </ul> <p><b>Benefits to the environment</b></p> <ul style="list-style-type: none"> <li>clean air and water</li> <li>healthy environments</li> <li>reduction in disease</li> <li>reduction in pollution</li> </ul> <p><b>Types of waste items</b></p> <ul style="list-style-type: none"> <li>old furniture</li> <li>waste products generated from goods produced locally and imported goods</li> <li>origins of a familiar product</li> <li>processes used in making a product such as water treatment, chemicals</li> </ul> | <p><b>Ecological values</b></p> <ul style="list-style-type: none"> <li>forests – supporting a range of plant and animal life</li> <li>coral reefs – supporting a range of plant and animal life</li> <li>importance of ecological systems as basis for all life on earth</li> </ul> <p><b>Economic values</b></p> <ul style="list-style-type: none"> <li>values associated with how humans can attain money through using or managing environments</li> </ul> <p><b>Cultural values</b></p> <ul style="list-style-type: none"> <li>beliefs and values associated with cultural aspects such as religious, art, customs, taboos, ceremonies, sacred places</li> </ul> |

|   | Grade 6   | Grade 7  | Grade 8   |
|---|---|--|---|
| Recommended skills and suggested activities | <p><b>Environmentally friendly actions</b></p> <ul style="list-style-type: none"> <li>proper waste management practices such as composting, recycling or reusing paper</li> <li>reusing waste materials such as used tyres as flower pots</li> <li>crop protections using integrated pest management control such as growing crops that deter insects instead of chemicals</li> <li>soil conservation practices such as growing legumes, crop rotation, contouring</li> <li>butterfly farming</li> <li>relevant conservation practices such as, water conservation, energy saving practices, using alternative energy like solar or wind</li> <li>marine protected areas</li> </ul> | <p><b>Practical waste management programs</b></p> <p><b>Ways of reducing waste</b></p> <ul style="list-style-type: none"> <li>choice in packaging</li> <li>conserving water</li> <li>disposal of rubbish biodegradable and non-biodegradable items in appropriate places</li> </ul> <p><b>Ways of reusing waste products</b></p> <ul style="list-style-type: none"> <li>making flower pots using used products such as old tyres, old containers</li> <li>making hats using empty cans</li> <li>making floor rugs using old clothes</li> </ul> <p><b>Ways of recycling waste</b></p> <ul style="list-style-type: none"> <li>recycling paper</li> <li>aluminium recycling</li> <li>glass recycling</li> <li>metal recycling</li> <li>plastic recycling</li> </ul> | <p><b>Friendly ways of managing the environment</b></p> <p>Decide and apply most effective way to conserve, manage or sustain the environment in projects such as</p> <ul style="list-style-type: none"> <li>setting and maintaining a mini-botanical garden or a mini-rainforest</li> <li>establishing an orchard farm</li> <li>reforestation</li> <li>gardening using crop rotation and integrated pest management control</li> <li>conservation of coral reefs</li> <li>establish protected areas</li> <li>ecotourism</li> <li>management of harvesting areas</li> </ul> |
| Subject links                               | Science 6.2.2   | Science 8.2.2  |   |

**Substrand:** Crop and animal management

|                         | Grade 6   | Grade 7  | Grade 8   |
|-------------------------|---|--|---|
| Learning Outcome        | <b>6.1.3</b> Share an understanding of the economical, cultural and nutritional value of crops and animals and compare the benefits of traditional and commercial crops and animal management   | <b>7.1.3</b> Explain appropriate crop management and animal husbandry practices and demonstrate these through undertaking a practical project  | <b>8.1.3</b> Plan, design and implement a crop or animal project suited to local conditions and resources aimed at generating an income   |
| Making a Living Process | <p><b>Investigate:</b> Students investigate and share when they</p> <ul style="list-style-type: none"> <li>• observe and ask questions to gather information about value of crops and animals</li> <li>• consider the nutritional value of crops and animals and identify food that belongs to the three food groups</li> <li>• discuss advantages and disadvantages of traditional and commercial crops and animal management</li> </ul> | <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>• Plan and implement crop and animal project</li> <li>• work individually or cooperatively on a crop or animal project</li> <li>• apply crop management techniques on selected crops</li> <li>• apply animal husbandry practices on identified animals</li> </ul> | <p><b>Plan and design:</b> Students plan and design when they</p> <ul style="list-style-type: none"> <li>• identify suitable animal or crop project for local conditions</li> <li>• list resources needed to undertake project</li> <li>• calculate costs and estimated income</li> <li>• develop a n action plan</li> </ul> <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>• apply appropriate management practices to animal or crop project</li> <li>• maintain high quality production to meet market needs</li> <li>• adapt ides and plans in response to constrains and difficulties</li> </ul> |

|   | Grade 6   | Grade 7  | Grade 8  |
|---|---|--|--|
| Recommended knowledge                       | <p><b>Economical values</b> of crops and animals</p> <p>Source of income for individuals, families, and the country</p> <p><b>Nutritional value</b> of crops and animals</p> <p>Crops and animals have protein, carbohydrates, vitamins and minerals</p> <p><b>Cultural value</b></p> <p>Crops and animals promote traditional values and our identity</p> <p><b>Importance of crops and animals</b></p> <ul style="list-style-type: none"> <li>• human consumption</li> <li>• source of income</li> <li>• trade and export</li> <li>• medicinal uses</li> <li>• aesthetic</li> <li>• cultural</li> </ul> <p><b>Benefits of traditional crops and animals</b></p> <ul style="list-style-type: none"> <li>• resistant to diseases</li> <li>• seed collection and propagation</li> <li>• assists in maintaining cultural heritage and identity</li> <li>• suited to local conditions</li> <li>• promotes and maintains traditional farming methods</li> <li>• maintains local biodiversity</li> </ul> <p><b>Benefits of commercial crops and animals</b></p> <ul style="list-style-type: none"> <li>• high yielding</li> <li>• fast growth</li> <li>• larger commercial market</li> <li>• export potential</li> </ul> | <p><b>Appropriate crop management practices</b></p> <ul style="list-style-type: none"> <li>• land preparation</li> <li>• planting methods such as nursery or direct planting</li> <li>• weeding</li> <li>• mulching</li> <li>• irrigation</li> <li>• harvesting</li> <li>• processing</li> <li>• storage</li> <li>• pest and disease control</li> </ul> <p><b>Appropriate animal husbandry practices</b></p> <ul style="list-style-type: none"> <li>• housing</li> <li>• feeding</li> <li>• choosing breeding stock</li> <li>• health and hygiene</li> <li>• handling</li> <li>• slaughter and processing</li> </ul> | <p><b>Importance of planning</b></p> <p>Thinking ahead and making preparation for activities in the future</p> <ul style="list-style-type: none"> <li>• needs of the community</li> <li>• economical, nutritional and cultural value of crops and animals</li> <li>• customs and beliefs</li> </ul> <p><b>Process and principles of planning and implementing a project</b></p> <ul style="list-style-type: none"> <li>• labour</li> <li>• materials, and management practice</li> <li>• investigate the economic opportunities of the animal and crop project</li> <li>• select a specific crop or animal and plan and design the project</li> <li>• design steps and activities</li> <li>• estimate time frame and costs involved in the project</li> <li>• apply appropriate management practices</li> <li>• selling and banking or other investments</li> <li>• evaluation of the project and suggest ways of improving the project in the future local conditions</li> <li>• rainfall</li> <li>• soil type</li> <li>• humidity</li> <li>• altitude</li> <li>• land forms</li> </ul> |
| Recommended skills and suggested activities | <p><b>Compare benefits</b></p> <ul style="list-style-type: none"> <li>• conduct a survey to identify valuable crops and animals in the local area</li> <li>• evaluate the benefits of both traditional and commercial farming</li> <li>• make an informed decision about which farming system would be most beneficial and appropriate to their local area</li> </ul>   | <p><b>Possible practical projects</b></p> <ul style="list-style-type: none"> <li>• vanilla farming</li> <li>• growing African yams</li> <li>• raising broilers or layers</li> <li>• fish farming</li> <li>• growing rice</li> <li>• vegetable garden</li> <li>• mushroom farming</li> <li>• plant nursery</li> <li>• indigenous plant garden</li> <li>• landscaping</li> <li>• growing cash crops such as coffee, rubber, cocoa and coconut</li> </ul>   | <p><b>Possible projects for generating income</b></p> <ul style="list-style-type: none"> <li>• vanilla farming</li> <li>• growing African yams</li> <li>• raising broilers or layers</li> <li>• fish farming</li> <li>• growing rice</li> <li>• vegetable garden</li> <li>• mushroom farming</li> <li>• plant nursery</li> <li>• indigenous plant garden</li> <li>• landscaping</li> <li>• growing cash crops such as coffee, rubber, cocoa and coconut</li> <li>• looking after a piggery</li> <li>• raising cattle, sheep and goats</li> </ul>   |
| Subject links                               | Science 7.2.1   |  |  |

**Strand:** Better living**Substrand:** Healthy living

| Learning Outcome               | Grade 6  | Grade 7  | Grade 8   |
|--------------------------------|--|--|---|
| <b>Making a Living process</b> | <p><b>6.2.1</b> <i>Describe and demonstrate aspects of personal hygiene, nutrition and safety that promote a healthy lifestyle</i></p>   | <p><b>7.2.1</b> <i>Analyse aspects of a nutritious diet and suggest how, and where they might obtain, preserve, process and prepare these foods to meet nutritional requirements</i></p>   | <p><b>8.2.1</b> <i>Investigate and implement practical ways to produce and prepare food for personal consumption or to generate an income</i></p>   |
|                                | <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>• observe and compare differences of a healthy life style and an unhealthy life style</li> <li>• collect information from a range of sources</li> <li>• conduct interviews to gather evidence on personal hygiene and nutrition in the school or local community</li> </ul> | <p><b>Evaluate:</b> Students evaluate when they</p> <ul style="list-style-type: none"> <li>• identify food that makes up a nutritional diet</li> <li>• assess quality of a nutritious diet in the local community</li> <li>• discuss different methods of obtaining, processing and preserving food</li> </ul> | <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>• gather information on a range of ways of preparing food for sale or consumption</li> <li>• explore opportunities or a need for cooking food</li> <li>• conduct a survey to identify food in demand</li> </ul> <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>• follow recipes and prepare food</li> <li>• use cooking utensils safely</li> <li>• use different cooking methods to prepare food</li> <li>• serve and present food for different occasions</li> </ul> <p><b>Market:</b> Students market when they</p> <ul style="list-style-type: none"> <li>• calculate selling prices and estimate profit</li> <li>• advertise food for sale</li> <li>• keep a record of sales</li> </ul> <p><b>Ways to produce food</b></p> <ul style="list-style-type: none"> <li>• gardening, raising livestock, fishing</li> <li>• gathering</li> <li>• processing raw materials such as kaukau</li> </ul> <p><b>Ways to prepare food</b></p> <ul style="list-style-type: none"> <li>• boiling, baking, roasting, grilling, smoking, mumu, barbecuing, steaming, casseroles</li> </ul> <p><b>Factors to consider in food preparation for sale</b></p> <ul style="list-style-type: none"> <li>• handling and packaging food</li> <li>• special occasions</li> <li>• number of people to be catered for</li> <li>• cost and equipment</li> <li>• resources: materials, utensils, equipment, human, time management</li> <li>• marketing: price, product, place, promotion</li> </ul> |

|   | Grade 6  | Grade 7  | Grade 8  |
|---|--|--|--|
| Recommended skills and suggested activities | <p><b>Describe and demonstrate healthy life style</b></p> <ul style="list-style-type: none"> <li>• care for the skin, hair, hands and feet, ears, eyes, nose</li> <li>• caring for clothes including using appropriate laundry process</li> <li>• apply appropriate ways of maintaining cleanliness at home or school</li> <li>• undertake appropriate waste disposal practices</li> <li>• carry out food preparation including cooking, serving and preserving</li> </ul> <p><b>Apply safety practices</b></p> <ul style="list-style-type: none"> <li>• at home when playing, working in and around the house</li> <li>• using tools and equipment</li> <li>• storage of flammable chemicals like kerosene</li> <li>• apply safety habits (such as checking broken items, disposal of rubbish)</li> </ul> | <p><b>Prepare food to meet nutritional requirements</b></p> <ul style="list-style-type: none"> <li>• cook a balanced meal</li> <li>• prepare meals for different groups of people doing different activities</li> <li>• use different methods of food preparation, processing and preservation - traditional and modern</li> <li>• use different recipes for cooking starchy food, vegetables and meat protein</li> <li>• apply appropriate ways of processing and preserving food. such as making fruit juice, chips, cassava</li> <li>• compare economical and nutritional value of preparing food obtained from the garden and store</li> </ul> | <p><b>Prepare food for consumption</b></p> <ul style="list-style-type: none"> <li>• use different cooking and serving utensils</li> <li>• arranging food and setting tables for different occasions</li> <li>• apply table manners and eating customs during meal times</li> </ul> |
| Subject links                               | Science 7.2.1  |  |  |

**Substrand:** Care and management

| Learning Outcome               | Grade 6  | Grade 7  | Grade 8  |
|--------------------------------|--|--|--|
| <b>Making a Living process</b> | <p><b>6.2.2</b> Develop an awareness of the importance of effective management skills in creating pleasant and safe environments at home and school and apply and make suggestions for improvement</p> <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>visit different locations in the schools and identify unpleasant and unsafe environments</li> <li>list criteria for a pleasant and safe environment</li> <li>interview students on their views about what is a safe and pleasant environment</li> </ul> <p><b>Plan and design:</b> Students plan and design when they</p> <ul style="list-style-type: none"> <li>draw up a plan of activities to create awareness</li> <li>identify resources and how to obtain these resources</li> </ul> | <p><b>7.2.2</b> Assess home and school buildings to identify areas that require maintenance, repair or other improvements and undertake appropriate actions</p> <p><b>Evaluate:</b> Students evaluate when they</p> <ul style="list-style-type: none"> <li>justify reasons for doing regular maintenance and repair</li> <li>develop and use a set or criteria or guidelines for assessing buildings that require maintenance and improvement</li> <li>compare advantages and disadvantages of repairing and regular maintenance of buildings</li> </ul> <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>identify parts of buildings that require maintenance and repair</li> <li>apply appropriate methods and techniques for maintenance and repair</li> <li>use tools, equipment and cleaning agents safely</li> </ul> | <p><b>8.2.2</b> Work collaboratively with others to select and undertake a project based on identified needs within the school or community</p> <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>use appropriate techniques to gather information on identified needs</li> <li>interview individuals or groups</li> <li>develop and distribute questionnaires</li> <li>undertake informal discussions</li> <li>reports</li> <li>record information and prioritise</li> </ul> <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>plan and implement strategies to meet identified needs in the community</li> <li>work cooperatively with others to achieve identified goals</li> </ul> |

|   | Grade 6  | Grade 7   | Grade 8   |
|---|--|---|---|
| Recommended knowledge                       | <p><b>Pleasant and safe home and school environment</b></p> <ul style="list-style-type: none"> <li>• clean and accident free</li> <li>• comfortable, attractive, inviting, and pleasant</li> <li>• free from pests</li> <li>• neat and tidy furniture arrangement</li> </ul> <p><b>Importance of effective management skill</b></p> <ul style="list-style-type: none"> <li>• save money, time, labour in carrying out different activities</li> <li>• reduce accident occurrence</li> <li>• work efficiently with limited resources</li> <li>• manage time and achieve productivity</li> </ul>   | <p><b>Home, school and community buildings</b></p> <ul style="list-style-type: none"> <li>• house</li> <li>• church</li> <li>• community hall</li> <li>• staff room and classroom</li> <li>• toilets</li> <li>• kitchen</li> <li>• tool shed</li> </ul> <p><b>Areas that require maintenance and repair</b></p> <ul style="list-style-type: none"> <li>• broken walls, steps, floor, louvers, tables and chairs, shelves, beds</li> <li>• leaking taps, broken water pipes</li> </ul> <p><b>Other Improvements</b></p> <ul style="list-style-type: none"> <li>• repainting of walls</li> <li>• replacing louvers or window frames</li> <li>• landscaping</li> <li>• extensions to buildings</li> <li>• construction of footpaths</li> <li>• botanical garden</li> </ul> <p><b>Possible areas to assess</b></p> <ul style="list-style-type: none"> <li>• parts of the building that require maintenance and improvements</li> <li>• doors, flooring, steps, cupboards, roofing, gutters, tanks, bathrooms, kitchen, living room, garden, bedroom, veranda, railings</li> </ul> | <p><b>Working collaboratively</b></p> <ul style="list-style-type: none"> <li>• effective communication skills such as speaking, listening, comprehending</li> <li>• building good working relationships through use of effective interpersonal skills</li> <li>• public relations</li> <li>• acknowledging, appreciating and respecting others' views and opinions</li> </ul> <p><b>Factors to consider when selecting and planning a project based on an identified need</b></p> <ul style="list-style-type: none"> <li>• resources such as time, cost, money, materials, tools, facilities</li> <li>• locations</li> <li>• viability</li> <li>• tasks and activities</li> </ul> |
| Recommended skills and suggested activities | <p><b>Make suggestions to create a safe and pleasant environment</b></p> <ul style="list-style-type: none"> <li>• sweeping inside and outside</li> <li>• cleaning the floor, louvers, bathroom, kitchen</li> <li>• washing up dirty utensils</li> <li>• making flower beds, cleaning kitchen, bathroom</li> <li>• interior decoration</li> <li>• make interior decorations such as wall hanging</li> <li>• landscaping around the school</li> <li>• disposing of rubbish in appropriate places such as recycling paper</li> <li>• arranging furniture or home settings neatly</li> <li>• store tools and equipment or other items in the correct places</li> <li>• create awareness through various media forms such as posters, radios, role-plays</li> </ul> | <p><b>Undertake appropriate actions</b></p> <ul style="list-style-type: none"> <li>• repair broken walls, floor, steps</li> <li>• do monthly check on buildings</li> <li>• use improvised ways and methods to carry out maintenance, repair and improvements</li> <li>• clean different parts of the building such as floor, walls and ceiling, louvers</li> <li>• carry out a school beautification project</li> </ul>   | <p><b>Possible projects</b></p> <ul style="list-style-type: none"> <li>• environmental care</li> <li>• care and maintenance of facilities</li> <li>• sanitation</li> <li>• assisting individuals and groups in need</li> <li>• repair of buildings</li> <li>• road construction</li> <li>• water supply</li> </ul>  |
| Subject links                               | Science 7.3.2  |   |   |

**Strand:** Better living**Substrand:** Wise Consumer

|                         | Grade 6   | Grade 7  | Grade 8  |
|-------------------------|---|--|--|
| Learning Outcome        | <b>6.2.3</b> <i>Describe the importance of effective money management, record keeping and budget planning and apply this to a practical situation at home or school</i>   | <b>7.2.3</b> <i>Investigate consumer rights and responsibilities and demonstrate practical ways to be a wise consumer</i>  | <b>8.2.3</b> <i>Evaluate those goods and services that are provided by a range of organisations and make informed decisions about those that best meet their needs</i>   |
| Making a Living Process | <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>observe and ask questions to gather information on how people earn and spend money</li> <li>interview other students or members of the school community to gather information</li> <li>brainstorm on the consequences of mismanagement of money</li> </ul> <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>keep a personal diary</li> <li>follow steps to make a budget</li> <li>draw up a personal budget</li> </ul> | <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>collect information from a range of sources on their rights and responsibilities</li> <li>observe situations where consumers can demonstrate their rights and responsibilities</li> <li>interview and record information about the type of problems faced by consumers in the real world</li> <li>identify organisations that can assist to ensure consumer rights are protected</li> </ul> <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>apply their rights and responsibilities in a store or a market place or a place where they live</li> <li>develop and apply possible strategies to demonstrate consumer responsibilities</li> </ul> | <p><b>Evaluate:</b> Students evaluate when they</p> <ul style="list-style-type: none"> <li>develop and use a set of criteria to assess goods and services</li> <li>visit organisations and use the criteria to assess quality of goods and services</li> <li>make suggestions on how to improve goods and services that are provided in the community</li> </ul> |

|                       | Grade 6  | Grade 7   | Grade 8  |
|-----------------------|--|---|--|
| Recommended knowledge | <p><b>Effective money management</b></p> <ul style="list-style-type: none"> <li>different ways of earning and receiving incomes- regular such as rental and irregular project sales</li> <li>reasons for managing money such as <ul style="list-style-type: none"> <li>– spend wisely</li> <li>– saving</li> <li>– value hard work</li> <li>– cater for future improvements</li> </ul> </li> </ul> <p><b>Record keeping</b></p> <ul style="list-style-type: none"> <li>types of records, personal records such as birth or school certificates, land titles</li> <li>business such as source documents (cash receipts, invoice, statements)</li> <li>record keeping is important for monitoring income, expenses, balance of money, transparency, assessing success of the project</li> </ul> <p><b>Budget planning</b></p> <ul style="list-style-type: none"> <li>define and identify compositions of a budget</li> <li>steps in drawing up a budget</li> <li>identify need for the budget such as income, expenditure, savings, estimation, proposed budgets</li> <li>importance of money in today's cash society</li> </ul> | <p><b>Consumer rights and responsibilities</b></p> <ul style="list-style-type: none"> <li>consumer rights provide a consumer with guidelines for consumer protection and form the basis of consumer laws</li> <li>consumers have the rights to basic needs such as safety, to be informed, choice, be heard, redress, a healthy environment, consumer education</li> <li>consumers are responsible for obtaining information to take appropriate actions</li> <li>consumers are responsible for critical awareness, taking action, social concern, environmental awareness, working together</li> </ul> <p><b>Qualities of a wise consumer</b></p> <ul style="list-style-type: none"> <li>comparing prices of goods and services</li> <li>checking out the qualities of different brands</li> <li>general shopping list</li> <li>observes consumer laws for protection</li> <li>keep records such as receipt of purchases in a safe and clean place for future reference</li> </ul> | <p><b>Goods and services, needs and wants</b></p> <ul style="list-style-type: none"> <li>identify value of goods and services and organisations that provide these goods and services</li> <li>importance of services provided by the organisations</li> <li>financial institutions: banking such as loans, savings accounts</li> <li>communication</li> <li>electricity</li> <li>water</li> <li>transport, police, traffic departments</li> <li>the role of organisations <ul style="list-style-type: none"> <li>– consumer affairs councils</li> <li>– traffic department</li> <li>– town councils and health inspectors</li> </ul> </li> </ul> <p><b>Methods of evaluation</b></p> <ul style="list-style-type: none"> <li>compare range of organisations that provide goods and services <ul style="list-style-type: none"> <li>– investigate</li> <li>– interview</li> <li>– develop questions</li> </ul> </li> </ul> <p><b>Role and responsibilities of consumer organisations</b></p> <ul style="list-style-type: none"> <li>government and non-government organisations in the district, provincial and national level</li> <li>links between basic needs and appropriate ways of meeting these needs such as going to hospital or doctor when ill</li> </ul> |

|   | Grade 6  | Grade 7   | Grade 8  |
|---|--|---|--|
| Recommended skills and suggested activities | <p><b>Apply skills in a practical situation</b></p> <ul style="list-style-type: none"> <li>plan and carry out chosen activities with the school or community to generate income such as a garden, sewing or cooking project</li> <li>keep and maintain income and expenditure records required for a school projects</li> <li>deposit money in the bank or other forms of investments</li> <li>draw up a budget for a proposed project such as a personal, class or family budget</li> </ul> | <p><b>Apply ways to be a wise consumer in a practical situation</b></p> <ul style="list-style-type: none"> <li>identify common problems consumers face in the market place of Papua New Guinea and the Pacific Islands</li> <li>visit different shops and businesses to compare prices of goods and services</li> <li>identify common items used by families and check out quality of products using general shopping hints</li> <li>demonstrate rights and responsibilities of a wise consumer such as if a product has a defect use government consumer laws to seek redress or put things right</li> <li>use of receipts assists to seek redress</li> <li>discuss problems experienced and write about them <ul style="list-style-type: none"> <li>assess the product and the value</li> <li>carry out a project</li> <li>seek redress</li> </ul> </li> <li>practice consumer protection</li> <li>suggest how to use the different consumer laws set by the government to protect consumers such as The Goods Act, The Consumer Bureau, health regulations</li> <li>compare weights and measures used by shops and business</li> </ul> | <p><b>Make informed decisions about goods and services</b></p> <ul style="list-style-type: none"> <li>identify the organisations that provide goods and services</li> <li>compare the services and goods provided by these organisations</li> <li>discuss and give reasons for the policies that the government makes</li> <li>compare each of the organisations and the services they provide</li> <li>discuss the advantages of the services that are provided by these organisations</li> <li>make informed decisions on goods and services provided by the organisation</li> </ul> |

**Strand:** Better living

**Substrand:** Making things

| Learning Outcome               | Grade 6  | Grade 7  | Grade 8   |
|--------------------------------|--|--|---|
| <b>Making a Living Process</b> | <p><b>6.2.4</b> Identify resources and a range of tools and equipment required for handcrafts and apply the skills in a familiar practical situation</p> | <p><b>7.2.4</b> Initiate plans and apply appropriate techniques and processes to design and make an item that benefits the individual or the community</p> | <p><b>8.2.4</b> Investigate the appropriateness of materials for specific purposes and use their imagination to design, make and evaluate a product relevant to their needs</p> |

|                              | Grade 6  | Grade 7   | Grade 8   |
|------------------------------|--|---|---|
| <b>Recommended knowledge</b> | <p><b>Resources used for handcrafts</b></p> <ul style="list-style-type: none"> <li>• cane, coconut, pandanus nuts, tree barks, grass</li> <li>• used materials: used papers, cloths, waste products, timber off-cuts</li> <li>• wood, fabrics, metal, plastic</li> </ul> <p><b>Tools and equipment</b></p> <ul style="list-style-type: none"> <li>• names of basic tools and equipment <ul style="list-style-type: none"> <li>– sewing needles, sewing machine, stitch picker, thread</li> <li>– woodwork: hammer, chisel, clamp, plane, drill, sanding block</li> </ul> </li> <li>• name electric tools, parts and their uses</li> <li>• care and storage of tools and equipment</li> <li>• maintenance and repair</li> </ul> <p><b>Types of handcrafts</b></p> <ul style="list-style-type: none"> <li>• weaving, mats, photo frames, baskets, trays or bilums, soft toys, hangers, flowers, table decorations, designs, flower vases, carving, painting, jewellery, traditional bilas</li> </ul> <p><b>Importance of using available resources</b></p> <ul style="list-style-type: none"> <li>• cheap and easy to store</li> <li>• it brings out the beauty of the product shows originality of product</li> <li>• it preserves culture, pride and national identity producing home made products</li> </ul> | <p><b>Factors to consider when deciding on items that benefit individuals or communities</b></p> <ul style="list-style-type: none"> <li>• availability of resources, time, skills, expertise, costs, space</li> </ul> <p><b>Initiating plans</b></p> <ul style="list-style-type: none"> <li>• generate ideas through brainstorming</li> <li>• look at samples and adapt</li> <li>• create own designs with instruction or using imagination</li> <li>• imitate</li> <li>• decide upon most appropriate idea</li> <li>• develop a plan</li> <li>• decide on items needed</li> <li>• research and investigate the design, materials availability, suitability, techniques and skills required, tools and equipment</li> <li>• collect and gather needed resources</li> <li>• undertake production and manufacturing</li> <li>• test and evaluate</li> </ul> <p><b>Possible items to produce</b></p> <ul style="list-style-type: none"> <li>• sewing household items: curtain, pillow cases, bed covers, cushion covers, bags</li> <li>• clothing: dress, skirts, shirts, trousers</li> <li>• craft work: stuffed toy, baskets, mats, photo frames, beads, wall decorations, recycling, curtains using canes, hangers, carving</li> <li>• woodwork: coconut scraper, furniture such as beds, chairs, table, cupboard bookshelves, pencil boxes, flower vases</li> <li>• metal work: chair, bed, lamp stands, coconut scraper, barbecue plates, oven drums, strainer, rake, water tanks, buckets, tin trunks</li> </ul> | <p><b>Appropriateness of materials</b></p> <ul style="list-style-type: none"> <li>• quality and type of materials to use for specific purposes</li> <li>• availability of the materials in the environment</li> <li>• texture, flexibility, strength, smoothness, shape</li> <li>• consider the appropriateness of technologies to use</li> </ul> <p><b>Specific purposes</b></p> <ul style="list-style-type: none"> <li>• furniture</li> <li>• construction</li> <li>• cooking</li> <li>• gardening</li> <li>• clothing</li> <li>• entertainment</li> <li>• craft</li> <li>• fishing</li> <li>• hunting</li> <li>• gathering</li> <li>• examine the quality and quantity of material for appropriate purposes</li> <li>• experiment with different ways to achieve their purposes</li> </ul> |

|   | Grade 6  | Grade 7   | Grade 8   |
|---|--|---|---|
| Recommended skills and suggested activities | <p><b>Apply the skills in a familiar practical situation</b></p> <ul style="list-style-type: none"> <li>• basic hand sewing equipment such as needle, thread, tape measure</li> <li>• basic stitches such as tacking, running, back stitches, chain stitches</li> <li>• basic woodwork, cutting, sawing, sandpapering, basic wood joints</li> <li>• basic welding</li> </ul> | <p><b>Apply appropriate techniques and skills</b></p> <ul style="list-style-type: none"> <li>• sewing <ul style="list-style-type: none"> <li>– stitches, seams, tools and their functions</li> <li>– use of sewing machines</li> <li>– designing and drafting patterns</li> <li>– cutting, measuring</li> <li>– choosing fabrics according to texture and colour</li> </ul> </li> <li>• craftwork <ul style="list-style-type: none"> <li>– gluing, cutting, sewing, weaving, threading, carving</li> </ul> </li> <li>• woodwork <ul style="list-style-type: none"> <li>– nailing, sawing, measuring, joining, bending, drilling, chiselling, painting, polishing, hammering, screwing, sand-papering</li> </ul> </li> <li>• metalwork <ul style="list-style-type: none"> <li>– soldering, bending, drilling, cutting, grinding, measuring, painting, cleaning excess metal iron from soldering</li> </ul> </li> </ul> | <p><b>Use imagination</b></p> <ul style="list-style-type: none"> <li>• generate ideas for meeting needs and solving problems</li> <li>• consider the personal and local implications of their ideas</li> <li>• show initiative in generating ideas and producing plans</li> </ul> <p><b>Design and make</b></p> <ul style="list-style-type: none"> <li>• explore alternative design ideas and production processes</li> <li>• identify what is needed to implement an idea or a plan</li> <li>• examine how technologies work and are used</li> <li>• consider how technology can create conflicts</li> <li>• create plans to share ideas and outcomes</li> <li>• select materials for a particular purpose such as making a drum oven or deciding which timber is best for making beds, tables or chairs</li> <li>• draw a plan or scale drawing of a house or things to construct</li> <li>• use appropriate skills to produce, make or create a product</li> <li>• handle correct tools and equipment for the right purposes such as saw, hammer, screw driver</li> </ul> <p><b>Possible products</b></p> <ul style="list-style-type: none"> <li>• include clothing, cooking utensils, furniture, household items, tools, gardening tools, processing facilities such as cocoa fermenter, copra drier, coffee pulper</li> </ul> <p><b>Evaluate a product</b></p> <ul style="list-style-type: none"> <li>• look at what they have done to see how it meets their basic needs</li> <li>• examines the benefits and costs in functional, social and environmental terms</li> <li>• express their thoughts and feelings about the effects of technologies</li> <li>• review plans, techniques and resources</li> <li>• assess how well the outcomes meet the needs of the individual and the communities</li> <li>• reconsider their design ideas for improvement in the future</li> </ul> |
| Subject links                               | Science 6.3.5  | Science 7.3.5   | Science 8.3.5   |

**Strand:** Community development**Substrand:** Knowing your communities

|                         | Grade 6  | Grade 7  | Grade 8  |
|-------------------------|--|--|--|
| Learning Outcome        | <b>6.3.1</b> Identify the common features of their local community and make suggestions as to how these may influence or benefit community life  | <b>7.3.1</b> Reflect upon their personal strengths and capabilities and consider how they might use these to contribute in a positive way within the community   | <b>8.3.1</b> Apply an understanding of the local community to develop and undertake a co-operative plan that provides economic and social opportunities and benefits for their community   |
| Making a Living process | <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>• observe and describe features in the community</li> <li>• conduct a survey to find out how people use the features of the community for their benefits</li> <li>• interview community members on how people have used identified features of the community in the past</li> </ul> | <p><b>Evaluate:</b> Students evaluate when they</p> <ul style="list-style-type: none"> <li>• use developed criteria to assess individual strengths and weakness</li> <li>• consider each individual's capability and suggest how to use their capability to contribute to the community</li> <li>• consider alternate ways of overcoming incapability and weaknesses in the community</li> </ul> | <p><b>Plan and design:</b> Students plan and design when they</p> <ul style="list-style-type: none"> <li>• identify potential activities that will benefit the community</li> <li>• list resources and estimate costs of production</li> <li>• consider alternative options for achieving common goal and purpose</li> <li>• work with community plan to develop a cooperative plan</li> </ul> <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>• work cooperatively with the community to achieve specific purposes</li> <li>• apply appropriate production techniques</li> <li>• manage time and resources effectively</li> <li>• adapt ideas and plans in response to constraints and difficulties</li> </ul> |

|                              | <b>Grade 6</b>  | <b>Grade 7</b>  | <b>Grade 8</b>  |
|------------------------------|---|---|---|
| <b>Recommended knowledge</b> | <p><b>Common features of the community</b></p> <ul style="list-style-type: none"> <li>• basic services such as roads, schools, aid post, and church</li> <li>• geographic locations</li> <li>• populations</li> <li>• culture</li> <li>• climate</li> <li>• natural resources</li> <li>• community members</li> </ul> <p>How these features benefit or influence the community</p> <ul style="list-style-type: none"> <li>• services: better health, education, transport services</li> <li>• geographical locations: advantages and disadvantages associated with geographical locations such as isolation, access to services, available resources</li> <li>• population: social problems such as unemployment, crime, shortage of land, overcrowding, social interaction</li> <li>• natural resources: resources that provide basic needs - food, water and depend on local conditions or areas</li> <li>• climate and seasons: opportunity for people to participate in a range of activities such as coffee picking seasons, dry and wet, high and low tide, traditional calendar — influence of climate on food production</li> </ul> | <p><b>Personal strengths and capabilities</b></p> <ul style="list-style-type: none"> <li>• communication skills</li> <li>• leadership</li> <li>• public relations</li> <li>• sporting capabilities</li> <li>• technical skills</li> <li>• interpersonal skills</li> <li>• academic skills</li> <li>• problem solving skills</li> <li>• what am I good at doing and how is it important such as gardening, cash cropping, public relations, making canoes</li> </ul> <p><b>Possible contributions</b></p> <ul style="list-style-type: none"> <li>• time</li> <li>• resources</li> <li>• knowledge and skills</li> <li>• labour</li> </ul> <p><b>Importance of working with the community</b></p> <ul style="list-style-type: none"> <li>• gain respect and self esteem</li> <li>• build trust and good working relationships</li> <li>• promote self reliance</li> <li>• improves the living standards in the community</li> </ul> | <p><b>Understanding and knowledge of local community</b></p> <ul style="list-style-type: none"> <li>• culture, traditions, values</li> <li>• geographic locations</li> <li>• family clan</li> <li>• populations</li> <li>• impacts, influences of development and how it benefits the community</li> <li>• economic opportunities</li> <li>• resources <ul style="list-style-type: none"> <li>– cash crops</li> <li>– land and water resources</li> <li>– human resources</li> <li>– time</li> </ul> </li> </ul> <p><b>Sustainable development practices</b></p> <ul style="list-style-type: none"> <li>• efficient use and management of resources</li> <li>• conservation and preservation of environments</li> <li>• care of environments</li> <li>• capacity building</li> <li>• sustainable farming practices</li> <li>• peaceful relations</li> </ul> <p><b>Possible economic and social opportunities</b></p> <ul style="list-style-type: none"> <li>• social interactions <ul style="list-style-type: none"> <li>– sporting</li> <li>– religious</li> <li>– ceremonies</li> <li>– celebrations</li> <li>– arts and crafts</li> </ul> </li> <li>• economic (goods and services) <ul style="list-style-type: none"> <li>– selling iceblocks</li> <li>– betel nut</li> <li>– cash crops</li> <li>– commercial cropping such as rubber, coffee, vanilla, cocoa</li> <li>– babysitting</li> <li>– shoe repairs</li> <li>– providing labour</li> <li>– trade stores</li> <li>– PMV</li> </ul> </li> </ul> |

|  | Grade 6  | Grade 7   | Grade 8   |
|--|--|---|---|
| <b>Recommended skills and suggested activities</b> | <p><b>Make suggestions how features benefit community</b></p> <ul style="list-style-type: none"> <li>draw a resource map of the community to identify common features of the community</li> <li>compare the advantages and disadvantages each feature has upon the community</li> <li>discuss benefits of features and make suggestions for possible improvements</li> </ul> | <p><b>Reflect on strengths and capabilities</b></p> <ul style="list-style-type: none"> <li>sharing life experiences</li> <li>outline skills and techniques</li> <li>write stories of cultural activities</li> <li>assess past performance</li> <li>recalling past events</li> <li>consider future ambitions and contributions</li> </ul> <p><b>Ways to contribute positively</b></p> <ul style="list-style-type: none"> <li>establish or maintain water supply</li> <li>facilitate awareness of importance of nutrition</li> <li>assist in development and maintenance of food gardens</li> <li>assist in working plantations</li> <li>constructing a house or a market place</li> <li>helping the sick and old people</li> </ul> | <p><b>Undertake cooperative plans</b></p> <ul style="list-style-type: none"> <li>identify and analyse community needs</li> <li>carry out viability survey of the projects</li> <li>possible problems and their solutions</li> <li>estimate costs of production and time frame</li> <li>plan and design activities</li> <li>working with the community on the selected project that improves the quality of life such as social services and physical development</li> <li>evaluate if the project is benefiting the community and make suggestions for improvement</li> </ul> |
| <b>Subject links</b>                               | Science 6.4.1  |   |   |

**Strand:** Community development

**Substrand:** Communication

| Learning Outcome               | Grade 6   | Grade 7   | Grade 8  |
|--------------------------------|---|---|--|
| <b>Making a Living Process</b> | <p><b>6.3.2 Investigate and practise practical skills of effective communication</b></p> <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>• consider different ways of sending, receiving and storing information such as signs, signals, television, message sticks, telephones, books, computers</li> <li>• collect, record and display visual information by simple means such as graphics, sequenced pictures, picture graphs, diagrams, video images</li> <li>• use different mediums of communication and select the most appropriate medium for specific purposes</li> </ul> <p><b>Importance of effective communication</b></p> <ul style="list-style-type: none"> <li>• keeping community informed</li> <li>• meeting other people gives confidence and self esteem to individual and groups</li> <li>• maintaining good relationships</li> <li>• promotes networking</li> </ul> <p><b>Mediums of communication</b></p> <ul style="list-style-type: none"> <li>• radio, word of mouth, telephone, newspaper, TV, computer, letter, internet, fax</li> </ul> <p><b>Effective communication skills</b></p> <ul style="list-style-type: none"> <li>• listening and speaking</li> <li>• reading</li> <li>• writing</li> <li>• collecting data and information</li> <li>• using computer</li> </ul> | <p><b>7.3.2 Identify and establish network partners within the wider community to promote more effective access to information</b></p> <p><b>Investigate:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>• gather information on the roles and responsibilities of various organisations at the provincial, national and international levels</li> <li>• invite relevant organisations to the school to share information and expertise</li> <li>• experiment with different organisations on how to achieve a set goal or purpose</li> </ul> <p><b>Possible network partners</b></p> <ul style="list-style-type: none"> <li>• government officers such as DAL, fisheries</li> <li>• non-government groups</li> <li>• churches</li> <li>• community elders and specialist</li> <li>• local level governments</li> <li>• business community</li> </ul> <p><b>Establish contact with net working partners</b></p> <ul style="list-style-type: none"> <li>• list or name the network partners within the wider community</li> <li>• make initial contacts with partner organisations</li> <li>• organise meetings</li> <li>• use telephones</li> <li>• write letters</li> </ul> | <p><b>8.3.2 Apply effective communication skills and mediums to facilitate awareness of an issue of concern to the community</b></p> <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>• experiment with a range of methods of communication</li> <li>• consider how technologies work and are used</li> <li>• follow simple procedures when using information systems such as basic keyboards, simple functions on videos or audio machines, catalogues</li> <li>• persevere with team work to resolve differences of opinions</li> <li>• use resources, techniques and equipment safely</li> </ul> <p><b>Issues of concern in the community</b></p> <ul style="list-style-type: none"> <li>• land disputes</li> <li>• law and order</li> <li>• literacy and health</li> <li>• education</li> </ul> <p><b>Effective communication skills</b></p> <ul style="list-style-type: none"> <li>• keeping community informed</li> <li>• meet other people</li> <li>• maintaining good relationships</li> <li>• promote networking</li> </ul> <p><b>Facilitate awareness</b></p> <ul style="list-style-type: none"> <li>• use range of communication mediums such as radio, word of mouth, telephone, newspaper, TV, computer, letter, internet, fax</li> <li>• use effective communication skills</li> <li>• promote a participatory approach</li> </ul> |

|  | Grade 6   | Grade 7   | Grade 8   |
|--|---|---|---|
| <b>Recommended skills and suggested activities</b> | <p><b>Demonstrate communication skills effectively by</b></p> <ul style="list-style-type: none"> <li>• practising interviewing</li> <li>• practising report writing, letter writing</li> <li>• practising listening</li> <li>• practising collecting data</li> <li>• practising basic typing skills on a computer</li> </ul> <p><b>Use various communication mediums</b></p> <ul style="list-style-type: none"> <li>• conduct role plays</li> <li>• conduct interviews</li> <li>• write letters, reports, data collection</li> <li>• practise public speaking and presenting reports</li> <li>• invite guest speakers from the community</li> </ul> | <p><b>Use appropriate methods to access information</b></p> <ul style="list-style-type: none"> <li>• read newsletters</li> <li>• listen to radio</li> <li>• use television</li> <li>• write letters</li> <li>• use postal services</li> <li>• computer</li> <li>• fax</li> <li>• telephone</li> </ul> | <p><b>Investigate issues</b></p> <ul style="list-style-type: none"> <li>• formulate questions and conduct interviews in the community on a selected issue</li> <li>• organise and conduct public meetings, demonstrations and debates</li> <li>• compile a report, do presentation</li> <li>• analyse reports of issues</li> </ul> <p><b>Use a range of communication mediums</b></p> <ul style="list-style-type: none"> <li>• use radio station, computers, telephone, letters</li> <li>• write newsletters</li> <li>• create or design posters or booklets for awareness in community issues</li> </ul> <p><b>Apply effective communication skills</b></p> <ul style="list-style-type: none"> <li>• plan and carry out awareness campaign on issues in the community</li> </ul> |

**Strand:** Community development

**Substrand:** Community projects

|                                | <b>Grade 6</b>   | <b>Grade 7</b>  | <b>Grade 8</b>  |
|--------------------------------|--|---|---|
| <b>Learning Outcome</b>        | <b>6.3.3</b> <i>Participate in projects to meet identified needs and opportunities for improvement within the school</i>   | <b>7.3.3</b> <i>Initiate and plan co-operative projects that encourage community and school participation</i>   | <b>8.3.3</b> <i>Plan and undertake an enterprising project to enable them to make a living</i>  |
| <b>Making a Living process</b> | <p><b>Make or produce:</b> Students make or produce when they</p> <ul style="list-style-type: none"> <li>• work cooperatively to meet identified needs and opportunities in the community</li> <li>• manage time and resources effectively</li> <li>• follow specifications in a plan to achieve specific purposes</li> </ul>  | <p><b>Plan and design:</b> Students investigate when they</p> <ul style="list-style-type: none"> <li>• generate plans and proposals for creatively solving problems</li> <li>• consider options, identify priorities and constraints</li> <li>• choose appropriate resources and equipment</li> <li>• develop criteria to assess how well they have achieved results in the projects</li> </ul>   | <p><b>Plan and design:</b> Students plan and design when they</p> <ul style="list-style-type: none"> <li>• identify suitable project and the resources required</li> <li>• list activities in a logical sequence and develop an action plan</li> <li>• estimate the cost of materials required for the project</li> <li>• calculate expected income of the project</li> <li>• develop criteria to assess the final product</li> </ul> <p><b>Make or produce</b><br/>Students make or produce when they</p> <ul style="list-style-type: none"> <li>• work individually or cooperatively to accomplish the project</li> <li>• apply appropriate production techniques</li> <li>• monitor and control quality of production</li> </ul> |
| <b>Recommended knowledge</b>   | <p><b>Needs ( essentials for life)</b></p> <ul style="list-style-type: none"> <li>• safe drinking and cooking water</li> <li>• nutritious food</li> <li>• safe shelter</li> <li>• clean air</li> <li>• healthy environment</li> </ul> <p><b>Opportunities (chance to advance)</b></p> <ul style="list-style-type: none"> <li>• education</li> <li>• sports</li> <li>• economic</li> <li>• being enterprising</li> <li>• social</li> </ul> <p><b>Possible school improvements</b></p> <ul style="list-style-type: none"> <li>• footpath, tree planting, notice board, maintenance of buildings, flower gardening, sea wall</li> </ul> <p><b>Importance of teamwork</b></p> <ul style="list-style-type: none"> <li>• sharing responsibilities</li> <li>• cost efficiency</li> <li>• maximum use of resources</li> <li>• sharing ideas and learning from each other</li> <li>• building capacity</li> </ul> | <p><b>Possible cooperative projects</b></p> <ul style="list-style-type: none"> <li>• haus win, public notice board, plant nursery, road maintenance, water supply, environmental projects</li> <li>• community driven initiatives that promote self reliance, self esteem and ownership</li> <li>• work with partner organisation</li> </ul> <p><b>Initiate</b></p> <ul style="list-style-type: none"> <li>• approach community groups with common interest</li> <li>• involving community members in generating ideas</li> <li>• prioritise ideas and work out strategies to achieve common goals</li> <li>• work collaboratively in developing plans</li> </ul> | <p><b>Possible enterprising projects</b></p> <ul style="list-style-type: none"> <li>• agricultural projects</li> <li>• handicraft</li> <li>• catering and hospitality</li> <li>• ecotourism</li> <li>• walkabout saw mill</li> <li>• construction and maintenance</li> </ul> <p><b>Principles of planning and running an enterprise</b></p> <ul style="list-style-type: none"> <li>• self-reliance</li> <li>• risk-taking</li> <li>• adapting to changes</li> <li>• solving problems</li> <li>• registration of a business</li> <li>• understanding taxation</li> <li>• labour laws</li> <li>• quality control of products</li> <li>• money management</li> <li>• sustainability</li> </ul>   |

|   | Grade 6  | Grade 7  | Grade 8   |
|---|--|--|---|
| Recommended skills and suggested activities | <p><b>Investigate needs and opportunities by</b></p> <ul style="list-style-type: none"> <li>• observing physical, economic and environmental aspects of the school</li> <li>• interviewing other students and staff</li> <li>• listening to problems and complaints</li> </ul> <p><b>Plan and implement a school improvement project</b></p> <ul style="list-style-type: none"> <li>• plan a range of strategies to meet needs and opportunities</li> <li>• division of responsibilities</li> <li>• identify resources and apply steps to complete the project</li> <li>• evaluate the projects</li> <li>• work as a group and share responsibilities</li> <li>• group discussion that leads to democratic decision making</li> <li>• monitoring the process of the project</li> </ul> | <p><b>Plan a cooperative project</b></p> <ul style="list-style-type: none"> <li>• make budgets, identify possible source of funds, materials and resources required</li> <li>• suggest ways in which individuals can contribute</li> <li>• develop an action plan to involve school and community</li> </ul> <p><b>Participate in the project</b></p> <ul style="list-style-type: none"> <li>• school and community work together to complete a project</li> <li>• teamwork, communication, shared objectives, division of labour</li> <li>• monitor and assess progress of the project</li> </ul> | <p><b>Investigate opportunities for an enterprising project</b></p> <ul style="list-style-type: none"> <li>• conduct interview with resource people</li> <li>• conduct excursion, observation</li> <li>• obtain and review printed materials</li> <li>• consider the viability and sustainability of the project from environmental, financial, social perspectives</li> <li>• consider possibilities of short term and long-term projects</li> <li>• identify possible sources of funding to establish and support the project</li> </ul> <p><b>Plan and undertake the project</b></p> <ul style="list-style-type: none"> <li>• do a business plan</li> <li>• schedule task</li> <li>• division of responsibilities</li> <li>• management</li> <li>• decision making</li> <li>• resource acquisition</li> <li>• inventory control</li> <li>• basic accounting</li> <li>• banking</li> <li>• financing</li> <li>• monitoring</li> <li>• developing marketing strategies</li> <li>• predict possible constraints and suggest ways to overcome these</li> <li>• develop a management plan to monitor and evaluate the projects</li> </ul> |

## How to use the elaborations

The elaborations contain the knowledge, skills and context for Making a Living for Grades 6, 7 and 8. Teachers are expected to identify the following:

- the learning outcomes from the Syllabus,
- Making a Living processes,
- recommended knowledge,
- recommended skills and suggested activities.

For example, for outcome 6.1.1 teachers go to the elaborations and choose the type of investigation they will develop from the list provided such as gathering information from different sources. They will then choose the type of resource to be investigated from the 'Recommended knowledge' section such as to investigate a local animal that is useful to the community. The teacher with the students will then decide on a suitable unit of work, topic or a type of a project the students can do to achieve the learning outcomes.

### Making a Living process Investigating

Gather information from different sources such as talking with community members, reading papers, statistics: facts and figures.

#### Students know Land resources

- plants: native and vegetation crops.

#### Human needs

- food.

#### Students can apply appropriate ways of managing resources

- conservation of endemic rare plants and animals,
- reforestation,
- crop rotation.

# Units of work

## What is a unit of work?

A unit of work is a set of sequenced learning activities aimed at achieving a learning outcome or outcomes. You can develop units of work specifically for one outcome in a Grade or integrated across the Strands and across the subjects. Most of the units of work in Making a Living are school based projects. Students will develop knowledge, skills and attitudes through project work. You are encouraged to develop units of work to suit your purposes and preferences. There are three types of units of work:

- units of work for teaching specific outcomes or several outcomes in Making a Living,
- units of work for teaching the process skills,
- integrated units of work.

## Unit organisation

A unit of work will consist of the following features:

- title of the unit,
- Syllabus learning outcomes,
- indicators,
- learning activities organised according to process skills or specific processes,
- assessment tasks and how to record student achievements of learning outcomes,
- estimated timeframe for the unit of work,
- resources required to teach the unit,
- teaching program.

## Planning overview

It is important for you to understand the process of planning from the point of using learning outcomes through to developing assessment tasks. The following diagram outlines the basic steps in this process.

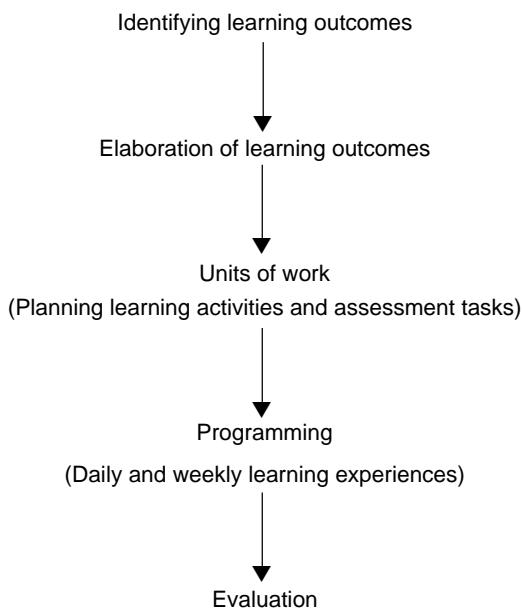
The starting point in the process begins with teachers choosing several outcomes that link naturally together. To assist teachers in understanding the outcomes and plan effectively, teachers should go to the elaborations of the learning outcomes to clarify their understanding and access ideas and suggestions for possible content, contexts and skills.

Use this information about outcomes to assist you in developing units of work. When planning units of work consider how you will assess students demonstration of the learning outcomes. It is essential to consider planning learning and assessment concurrently.

The next step in the process is to program the learning activities and assessment tasks for an identified period of time such as a term or a number of weeks.

Finally, on completion of the unit of work, it is vital that teachers undertake evaluation of the teaching and learning process.

### Learning process



## Process for developing units of work

There are many ways of developing units of work for students to demonstrate achievement of the learning outcome:

- select content from the elaboration of learning outcomes and plan your lesson activities depending on the specific skills you intend to teach,
- develop units of work and organise learning activities using the process skills of investigation, planning and designing, making or producing, marketing and evaluation. This process is applicable for teaching projects where students start the activity with an investigation and complete the process by evaluating their work,
- develop a unit of work that integrates across the Strands and across learning outcomes from other subjects. There are two ways of developing an integrated unit of work for Making a Living,
  - cluster learning outcomes from other subjects and decide on a suitable project,
  - decide on a project and identify relevant learning outcomes that students will achieve through the unit of work.

Here are two models showing the steps to follow when developing a unit of work.

- **Model 1** How to develop a unit of work for Making a Living.
- **Model 2** How to develop an integrated unit of work.

## Model 1: How to develop a unit of work for Making a Living

Described below is a model and a sample for the units of work on 'Growing peanuts'. Other sample units of work have been included to show the different formats.

### Step 1 Study the Syllabus learning outcomes

Consider learning outcomes for Managing Resources on page 11, Better Living on page 17, and Community Development on page 21.

### Step 2 Select and plan

After studying the learning outcomes, the teacher should now identify what students must know and be able to do. The learning outcomes describe the end product of learning. For example in the learning outcome 7.1.3, students need to demonstrate and explain appropriate crop management and animal husbandry practices and demonstrate these through undertaking a practical project. After completing a number of units of work, students may achieve parts of outcomes or sometimes several learning outcomes.

**Students will know:** appropriate crop management practices and animal husbandry practices: how to look after crops and animals.

**Students will do:** grow and care for plants or raise animals.

**Note:** Making a Living has broad learning outcomes and teachers need to select a specific project relevant to the local conditions. In this outcome, teachers may choose to do a crop project or an animal project depending on available resources and expertise.

### Step 3 Identify topics or projects

At this point, the teacher should now have identified suitable and appropriate topics and projects for the students to demonstrate achievement of the learning outcomes.

When selecting projects you need to consider the following

- student needs and interests,
- available resources,
- how students and schools can benefit,
- economic opportunities to advance,
- issues affecting the community.

A relevant project could be growing peanuts.

This is an example of a suitable context for achieving the learning outcomes. Study the outcomes carefully and think of suitable projects.

**Step 4** State the purpose of the unit

State purpose of the unit of work by summarising briefly what students will achieve through the learning outcome.

Focus on the project, explain the rationale and the aim of the unit and state clearly in the purpose what students will learn in this unit of work to achieve the learning outcomes.

For example, in this unit of work students explain appropriate management practices for growing peanuts through a practical project. Students will identify a suitable site for growing peanut and cultivate the soil to grow them. They care for the peanut garden by weeding, mulching and applying compost to improve soil fertility and soil structure.

**Step 5** State clearly the knowledge, skills and attitudes

Identify the unit content that states the knowledge, skills and attitudes that you want students to demonstrate in the unit of work. Write a statement that indicates broad areas of content: knowledge, skills and attitudes, that students will learn in this unit of work. Teachers can use the indicators in the Syllabus, the elaborations or other useful reference books to select appropriate content specifically related to the unit of work.

**Step 6** Identify teaching and learning activities

Brainstorm types of activities that will help students to achieve the selected content in the unit of work. Sequence learning activities using process skills of investigation, planning and designing, implementing or producing, marketing and evaluation as outlined in the sample unit of work.

**Step 7** Develop assessment plans

An assessment plan includes assessment details such as an assessment task, criteria and methods of recording. Consider a range of activities that students will do in a unit of work to achieve the Syllabus learning outcomes. Assessment tasks could be written test or observation of a practical project or both.

Students must be given adequate time to learn and practise the skills or activities before they are assessed. An example of an assessment task and criteria is provided in the sample unit of work.

**Step 8** Estimate the time duration

It is important for the teacher to make a fair estimation of the time required to complete the unit of work.

Teachers need to consider total time allocation of 360 mins per week and the type of project activities. The teacher needs to decide on how many lessons or weeks that will be required to complete a unit of work.

**Step 9** List relevant resources

Resources make teaching more meaningful and enjoyable. The teacher should get together all the required resources before starting the activities. This will consist of a list of tools, equipment, worksheets and recommended textbooks or other materials necessary to teach specific activities in the unit of work.

**Step 10** Develop a teaching program

The teaching program covers all the information needed to teach. Teaching programs vary from school to school. A teaching program can be referred to as a unit outline that includes the weeks, learning activities, assessment tasks and materials. Teachers can use this information for their daily lessons plans.

**Sample 1: Project Unit – Growing Peanuts****Grade 7**

**Strand:** Managing resources

**Substrand:** Crops and animal management

**Learning outcomes**

**7.1.3** Explain appropriate crop management and animal husbandry practices and demonstrate these through undertaking a practical project.

**Purpose**

The purpose of this unit is to allow students to explore appropriate management practices for growing peanuts through a practical project. In doing so students will identify a suitable site for growing peanuts and cultivate soil to grow them. They will apply appropriate management practices for example, weeding, mulching and applying compost to improve soil fertility and soil structure.

**Unit content**

**Knowledge:** Students will demonstrate and understand

- economical and nutritional value of growing peanuts,
- reasons for land preparation, weeding, mulching, and other management practices,
- names of tools and equipment and their uses,
- different varieties of peanuts.

**Skills:** Students will develop the skills to

- prepare soil for growing peanuts,
- plant peanuts with the correct spacing,
- care for a peanut garden by weeding, mulching, earth up,
- harvest peanuts.

**Attitudes:** Student will develop some positive attitudes, for example

- good work ethics such as responsibility, honesty, commitment and dedication,
- care and concern for crops,
- pride in their achievements.

### Teaching and learning activities

| Making a Living process                 | Student activities   | Assessment task   | Materials  |
|---|--|---|--|
| <b>Investigation</b><br>1 week          | <ul style="list-style-type: none"> <li>• select appropriate site for growing peanuts</li> <li>• discuss reasons for growing peanuts</li> <li>• research information on how to care for a peanut garden</li> </ul>  | list types of crop management   | information on peanuts   |
| <b>Planning and designing</b><br>1 week | <ul style="list-style-type: none"> <li>• calculate cost and estimate number of peanuts seeds to grow</li> <li>• identify tools and other materials required and where to obtain these materials</li> <li>• draw a sketch of the peanut garden</li> <li>• prepare a crop diary</li> <li>• calculate the land area used</li> <li>• produce a plan of action</li> </ul> |   |  |
| <b>Making or producing</b><br>2 weeks   | <ul style="list-style-type: none"> <li>• clear garden site</li> <li>• allocate plots to students</li> <li>• prepare oil for planting</li> <li>• plant peanuts</li> <li>• weeding, mulching, pest control,</li> <li>• record garden activities such as planting, germination, flowering, harvesting</li> <li>• harvesting</li> </ul>                                  | <ul style="list-style-type: none"> <li>mulching</li> <li>weeding</li> </ul> | <ul style="list-style-type: none"> <li>land, garden tools</li> <li>peanut seeds</li> </ul> |
| <b>Evaluation</b><br>1 week             | <ul style="list-style-type: none"> <li>• identify problems or success of the peanut garden</li> <li>• suggest ways of overcoming the problems</li> <li>• analyse information on the crop record to find out the maturity period for peanuts</li> </ul>   |   |  |

**Assessment**

| <b>Assessment methods</b> | <b>Assessment task</b>                  | <b>Criteria</b>  | <b>Recording method</b>      | <b>Comments</b> |
|---------------------------|---|--|------------------------------|-----------------|
| <b>Assignment</b>         | List types of crop management practices | Each student will <ul style="list-style-type: none"> <li>list at least 5 ways of looking after a peanut garden</li> <li>describe the reasons</li> <li>state how to apply the management practices</li> </ul> | checklist                    |                 |
| <b>Observation</b>        | Weeding                                 | Each student will <ul style="list-style-type: none"> <li>remove roots of weeds</li> <li>remove all the weeds</li> </ul>  | class list with the criteria |                 |
| <b>Observation</b>        | Mulching                                | Each student will <ul style="list-style-type: none"> <li>use organic materials</li> <li>put mulch about 5 cm from the plant</li> <li>add mulch to about 10 cm thick</li> </ul>                               | checklist                    |                 |

**Sample 2: Project Unit — Making a desktop cover****Grade 6****Strand:** Better living**Substrand:** Making things**Learning outcomes**

**6.2.4** Identify resources and a range of tools and equipment for handcrafts and apply the skills in a familiar practical situation.

**Purpose**

The purpose of this unit is to encourage students to identify resources and a range of tools and equipment required to make a woollen desk top cover. In this unit, students are expected to complete two different projects.

**Project 1:** Use a range of tools and apply skills for constructing a wooden frame.

**Project 2:** Choose the contrasting colour of wool to make a desktop cover.

**Unit content**

In this unit of work, students acquire the following knowledge, skills and attitudes in the project activities.

**Knowledge: students demonstrate an understanding of**

- characteristics of wood,
- names of tools and equipment and their uses,
- resources required for making a desk top cover,
- parts of a saw, a hammer and their functions.

**Skills: students develop the skill to**

- draw a scale design of a timber frame with correct measurements,
- handle a hammer correctly for nailing,
- measure correct length and width of the timber (such as 50cm x 50cm),
- handle a saw correctly for cutting the wood,
- measure the distance between the nails on the frame (about 3cm apart),
- measure and cut length and width of the timber (50cm x 50cm),
- join four pieces of timber by nailing to form a square,
- weave the wool between the nails on the frame,
- tie the knots firmly at the intersections,
- use a scissors to cut the wool to form small balls or pompoms.

**Attitudes: students develop attitudes of**

- caring for tools and equipment,
- safety consciousness,
- being responsible for their own actions.

## Overview of teaching and learning activities

| Process skills weeks                    | Learning activities   | Teaching strategies         | Assessment task  | Materials  |
|---|---|-----------------------------|--|--|
| <b>Investigation</b><br>Week 1          | <ul style="list-style-type: none"> <li>observe a sample of a completed desktop cover and discuss its uses</li> <li>discuss how the colours in the wool are arranged</li> <li>observe the different patterns</li> <li>identify locations to collect timber sizes and buy wool</li> <li>collect and assemble materials</li> </ul>   | discussion and modelling    |  | example of a completed desktop cover and a frame                                   |
| <b>Planning and designing</b><br>Week 2 | <ul style="list-style-type: none"> <li>estimate cost of timber and other materials</li> <li>draw a sketch and scale drawing of the frame</li> <li>do an action plan to indicate what needs to be done by whom and when</li> <li>buy wool</li> </ul>   | project planning            | scale drawing of the frame   |  |
| <b>Making or producing</b><br>Week 3-4  | <ul style="list-style-type: none"> <li>observe demonstration on how to use a saw and a hammer</li> <li>measure and cut correct size and shape of the timber</li> <li>join and nail timber to form a square</li> <li>measure and mark distance between nails 3cm apart on the frame</li> <li>drive nail into the frame</li> <li>weave desired coloured wool onto the frame to form a pattern</li> <li>tie the knots and cut the wool to form a ball</li> </ul> | demonstration and modelling | analysis of students completed timber frame<br><br>analysis of a desktop cover | 3 inches nails,<br>2 x 2 timber,<br>wool<br><br>tools such as saw and hammer, wool |
| <b>Marketing</b><br>Week 5              | <ul style="list-style-type: none"> <li>calculate the price of the desk top cover</li> <li>use desk top cover to decorate the desks or the classroom</li> <li>sell surplus desktops covers</li> <li>keep sales record</li> </ul>   | group work                  |  | pen and paper  |
| <b>Evaluation</b><br>Week 6             | <ul style="list-style-type: none"> <li>reflect on process of making a desk top cover</li> <li>identify any problems encountered and suggest solutions for future projects</li> </ul>  | journal writing             |  |  |

## **Daily plan**

**Sequence learning activities according to Making a Living time allocation and the school timetable.**

### **Sample Making a Living activity timetable**

| <b>Week</b> | <b>Monday</b>                                | <b>Tuesday</b>                                 | <b>Wednesday</b>                      | <b>Thursday</b>                   | <b>Friday</b>                  |
|-------------|--|--|---------------------------------------|-----------------------------------|--------------------------------|
| <b>1</b>    | Brainstorm<br>Observe models                 | Conduct survey                                 | Analyse reports on<br>a graph         | Write a report on<br>their survey | Select colour of<br>wool       |
| <b>2</b>    | Action plans<br>Delegate<br>responsibilities | Calculate costs<br>of the material             | Buy wool                              | Draw a sketch of<br>the frame     | Identify tools                 |
| <b>3</b>    | Collect tools, nail<br>and wool              | Observe<br>demonstration<br>how to use tools   | Demonstrate how<br>to construct frame | Construct frame                   | Construct frame                |
| <b>4</b>    | Construct frame                              | Demonstrate how<br>to weave                    | Weaving                               | Weaving                           | Tie and cut the<br>wool        |
| <b>5</b>    | Price product                                | Display on their<br>desk                       | Advertise product                     | Selling and<br>keeping records    | Selling and<br>keeping records |
| <b>6</b>    | Reflect on the<br>process                    | Identify problems<br>and possible<br>solutions | Write reports                         |                                   |                                |

## **Assessment**

Assessment is continuous and is done after students have had enough practice on the skills. This is an outline for the assessment plan.

### **Assessment outline plan**

| <b>Assessment<br/>methods</b>                               | <b>Assessment<br/>task</b>  | <b>Criteria</b>  | <b>Recording<br/>method</b>                         | <b>Comments</b> |
|---|---|--|---|-----------------|
| Teacher analyses<br>student samples<br>of work              | Students will draw<br>a neat scale<br>drawing to show<br>the correct<br>measurement for<br>the timber frame | The plan will include <ul style="list-style-type: none"> <li>the title of the scale drawing</li> <li>correct length and the width of the frame: 50 cm x 50 cm</li> <li>the position of the nails showing the distance apart accurately: 3 cm apart</li> <li>an accurate scale</li> </ul> | Record<br>students<br>achievement<br>on a checklist |                 |
| Teachers<br>analysis of<br>students<br>product              | Students will<br>produce a<br>completed frame   | The frame must reflect the following <ul style="list-style-type: none"> <li>joints neat, firm and strong</li> <li>nails are 3 cm apart and straight</li> <li>matches with the scale drawing</li> <li>correct length and width: 50 cm</li> </ul>  | Class sheet with<br>the criteria                    |                 |
| Observation of<br>the skills to<br>make a desk top<br>cover | Make a desk top<br>cover  | The students should <ul style="list-style-type: none"> <li>weave the wool between the nails to form a pattern</li> <li>tie knots firmly at the intersection</li> <li>cut wool halfway in the intersections.</li> <li>cut wool about 2 rows in from the edge</li> </ul>                   | Checklist   |                 |

### Sample 3: Project Unit – Making a Bamboo Comb

**Grade 6**

**Strand:** Better living

**Substrand:** Making things

**Learning outcome**

**6.2.4** Identify resources and a range of tools and equipment required for handicrafts and apply the skills in a familiar practical situation.

**Purpose**

The purpose of this unit is to help students identify useful resources and use a range of tools and equipment to make a bamboo comb. They will consider a variety of bamboo plants and select the right size suitable for making a comb. Students apply necessary skills in measuring, cutting and sharpening the edges of the comb.

#### Unit content

| Knowledge   | Skills   | Attitudes  |
|---|--|--|
| <p>Students will demonstrate an understanding of</p> <ul style="list-style-type: none"> <li>the importance of local resources to create useful products</li> <li>the different uses of bamboos</li> <li>names of tools and equipment and their uses</li> <li>processes or steps required to make a bamboo comb</li> </ul> | <p>Students will develop the skill to draw a design of a bamboo comb</p> <ul style="list-style-type: none"> <li>split the bamboo in half</li> <li>split into required pieces</li> <li>measure the bamboo and mark the area for lines removal</li> <li>sharpen the unwanted parts</li> <li>apply glue or a sap of a tree on combs</li> <li>decorate with designs on the completed comb</li> </ul> | <p>Students will</p> <ul style="list-style-type: none"> <li>appreciate and use home made products</li> <li>have concern for and protect the natural resources</li> <li>have pride in their achievements</li> </ul> |

#### Overview of teaching and learning activities

| Process skills                | Learning activities   | Teaching strategies                  | Assessment task                        | Materials                                       |
|-------------------------------|---|--------------------------------------|--|---|
| <b>Investigation</b>          | <ul style="list-style-type: none"> <li>identify places to collect bamboo and bush ropes</li> <li>discuss importance of using local raw materials</li> <li>name tools and equipment and explain their uses</li> </ul>  | discussion and modelling             |  | possible sites for collecting ropes and bamboos |
| <b>Planning and designing</b> | <ul style="list-style-type: none"> <li>make a sketch drawing of a comb</li> <li>identify tools and other materials required and where to obtain these materials</li> </ul>  | individual work, sharing experiences |  | ruler, paper                                    |
| <b>Making or producing</b>    | <ul style="list-style-type: none"> <li>collect bamboo from the bush and cut into required sizes and shapes</li> <li>split into required pieces</li> <li>measure the bamboo and mark the area for lines removal</li> <li>remove unwanted parts</li> <li>sharpen the unwanted parts</li> <li>apply glue or a sap of a tree on combs</li> <li>decorate with designs on the completed comb</li> </ul> | individual work, sharing experiences | observe students as they make the comb | bamboo, saw, pocket knife, polyurethane, ropes  |

*Note. Use only the processes that relate to the learning outcomes in this example.*

## Assessment – Assessment outline plan

| Assessment Methods | Assessment Task                                       | Criteria   | Recording method       | Comments |
|--------------------|---|--|------------------------|----------|
| <b>Observation</b> | Students applying skills learnt as they make the comb | <p>Each student will</p> <ul style="list-style-type: none"> <li>measure correctly 50 cm of the bamboo</li> <li>measure 1 cm on the bamboo for cutting</li> <li>split in between the lines marked on the bamboo</li> <li>sharpen and clean the end of the comb</li> </ul> | Individual task sheets |          |

### Sample 4: Project Unit – Rice Growing

Grade 8

**Strand:** Managing resources

**Substrand:** Crops and animal management

#### Learning outcome

**8.1.3** Plan, design and implement a crop or animal project suited to local conditions and resources aimed at generating an income.

#### Purpose

The purpose of this unit is to allow students to design and plan a rice garden and apply appropriate knowledge and skills they have learnt to grow rice for their own consumption.

#### Unit content

| Knowledge   | Skills  | Attitudes   |
|---|---|---|
| <p>Students demonstrate an understanding of</p> <ul style="list-style-type: none"> <li>the two varieties of upland rice plants and their characteristics</li> <li>the stages of growth of the rice plant: the vegetative, reproductive and the ripening stages</li> <li>how to grow rice using the direct planting method and the nursery method</li> </ul> | <p>Students develop the skills to</p> <ul style="list-style-type: none"> <li>prepare the soil for planting rice</li> <li>select rice seeds for planting</li> <li>plant rice in the nursery</li> <li>transplant from the nursery to the garden beds</li> <li>apply organic fertiliser</li> <li>conserve water through irrigation, weeding, mulching</li> <li>control pests and diseases</li> <li>harvest and process rice</li> </ul> | <p>Students develop an attitude about</p> <ul style="list-style-type: none"> <li>pride in achievement</li> <li>responsibility and dedication</li> <li>respect for crops and other people</li> <li>appreciate home grown products for nation building</li> </ul> |

## Overview of teaching and learning activities

| Process skills                | Learning activities  | Teaching Strategies                    | Assessment task                                | Materials |
|-------------------------------|--|--|--|-----------|
| <b>Investigation</b>          | <ul style="list-style-type: none"> <li>visit a rice project in the local area</li> <li>research and gather information about growing rice</li> <li>identify suitable sites for growing rice</li> <li>explore the viability of growing rice in the local area</li> </ul>  | excursion<br><br>guest speaker         |  |           |
| <b>Planning and designing</b> | <ul style="list-style-type: none"> <li>list activities required for growing rice and develop an action plan</li> <li>Identify resources and where to obtain resources</li> <li>calculate estimated cost and expected income</li> <li>prepare a garden diary</li> </ul>   | group work                             |  |           |
| <b>Making or producing</b>    | <ul style="list-style-type: none"> <li>clear the land and prepare the soil</li> <li>construct a nursery</li> <li>construct a compost shed</li> <li>plant rice seeds in the nursery</li> <li>transplant rice seedlings</li> <li>observe and keeping records of the growth stages from planting to harvesting</li> <li>apply fertilizer and insecticides</li> <li>observe rice plants and add water or nitrogen to produce tillers</li> <li>harvest, process and store rice for later use</li> </ul> | demonstration<br>or visit a model farm | nursery preparation<br>transplanting seedlings |           |
| <b>Evaluation</b>             | <ul style="list-style-type: none"> <li>identify problems encountered in growing rice and make suggestions for future improvements</li> <li>analyse crop records</li> </ul>   | discussion                             |  |           |

## Assessment Plan

| Assessment methods | Assessment task               | Criteria   | Recording method | Comments |
|--------------------|-------------------------------|--|------------------|----------|
| <b>Observation</b> | planting seeds in the nursery | <ul style="list-style-type: none"> <li>soak seeds in water for 24 hours</li> <li>keep seeds in an airy warm place for 48 hours</li> <li>scatter seeds closely on to a small nursery bed</li> </ul> | checklist        |          |

## Resources

Upland Rice Growing in Papua New Guinea – Food Security Branch of DAL, Simbu.

**Sample 5: Project Unit – Constructing a bench for sitting****Grade 8****Strand:** Community development**Substrand:** Knowing communities**Learning outcome**

**8.3.3** Plan and undertake an enterprising project to enable them to make a living.

**Purpose**

The purpose of this unit is to allow students to use the skills and knowledge they have learnt to plan, design and construct sitting benches on common gathering sites in the school. Students invite community members to demonstrate skills and assist them to construct benches.

**Overview of teaching and learning activities**

| Process skills                               | Learning activities  | Teaching strategies | Assessment task  | Materials  |
|--|--|---------------------|--|--|
| <b>Investigation</b><br><br>1 week<br>3 days | <ul style="list-style-type: none"> <li>identify possible sites for constructing the benches</li> <li>identify materials and other resources required</li> <li>estimate cost</li> <li>find out number of people who visit the school regularly</li> </ul> | group work          | Organisation and participation   | sites, paper, pencil, rope, tape measure                 |
| <b>Planning and designing</b><br><br>1 week  | <ul style="list-style-type: none"> <li>make a sketch map of the sites</li> <li>design the type of benches</li> <li>plan of action</li> <li>identify and collect materials and tools</li> </ul>   | group work          | <p>Checklist for designing a sitting bench</p> <p><b>Criteria</b></p> <p>Does the design of the bench meet identified purpose (safety, number of people, location)?</p> <p>Is design drawn to scale?</p>                       | sites, paper, pencil, rope, tape measure                 |
| <b>Implementation</b><br><br>2 weeks         | <ul style="list-style-type: none"> <li>prepare and clear the sites</li> <li>collect materials</li> <li>construct the benches</li> </ul>  |                     | <p>Participation</p> <p><b>Criteria</b></p> <p>Have the students demonstrated the ability to work cooperatively with others?</p>   | paper, pencil, rope, tape measure, spade, hammer, timber |
| <b>Marketing</b><br><br>1 week 2 days        | <ul style="list-style-type: none"> <li>draft regulations for use of benches</li> <li>conduct awareness on the purpose and proper use of the benches</li> </ul>   |                     | <p>Construction of bench</p> <p><b>Criteria</b></p> <p>Is bench constructed</p> <ul style="list-style-type: none"> <li>• to scale?</li> <li>• with limited wastage?</li> <li>• safe?</li> <li>• of a high standard?</li> </ul> | paper, pencil, rope, tape measure, spade, hammer, timber |
| <b>Evaluation</b><br><br>2 days              | <ul style="list-style-type: none"> <li>write a report on the process</li> <li>suggest possibilities for improvement</li> </ul>   |                     |  |  |

Consider other resource persons such as the village carpenter, village counsellor or leader

## Model 2: How to develop an integrated unit of work

Here is a model and the sample for a Unit of work integrating Mathematics, Social Science and Making a Living using a project: Design and prepare a flower garden.

This model describes the process for developing an integrated unit based on a project.

### Step 1 Study the content overview from the Syllabus

Step 1 requires the teachers to study the content overview in the Syllabus carefully, which shows the Strands, Substrands. Teachers should also read other relevant Grade 6 Syllabuses for the subjects concerned and scan through those Strands and the Substrands also. This should help the teacher to plan clearly the program for the year. For example in this sample, the teacher should study the content overview for Mathematics, Social Science and Making a Living.

### Step 2 Identify the outcomes

- Look through the Syllabus and identify the learning outcomes. Group 2 to 4 outcomes that link naturally together through similar concepts or processes. Pull out the main ideas from each of the selected outcomes and combine them. For example,
  - Social Science outcome **7.1.4** Describe national and regional sustainable practices related to the natural environment and propose solutions to problems
  - Making a Living outcome **7.1.1** Investigate and compare consequences of mismanagement of land and water resources and plan, design and undertake a small project using appropriate management practices and design and undertake a small project using appropriate management practices
  - Mathematics outcome **7.2.4** Compare area by estimation and **7.2.5** Investigate area rules for quadrilaterals
- Select a theme, topic, project or issue that ties these outcomes together. Brainstorm possible themes, topics or projects and select a suitable one that ties the outcomes together.

### Step 3 State the purpose

State the purpose of the unit of work by summarising briefly what students will achieve through the selected learning outcomes.

Focus on the project and explain the rationale and the aim of the unit and specifically what students will learn in this unit of work to achieve the learning outcomes. The purpose of the Unit of Work is described below. In this unit of work student will consider the importance of sustainable land management practices. They will apply this knowledge by designing and preparing a flowerbed. They will compare areas of garden beds by estimation and apply the rules for calculating areas.



**Step 4** Identify the content of the unit

Identify the unit content that states the knowledge, skills and attitudes that you want students to demonstrate in the unit of work. Use the outcomes and indicators in the Syllabuses and Elaborations in the Teachers Guides.

Write a statement that indicates broad areas of knowledge, skills and attitudes that students will learn in this unit of work. You should use the indicators in the Syllabus and the elaborations to select appropriate content specifically related to the unit of work.

**Step 5** Sequence teaching and learning activities

Develop and sequence teaching and learning activities. Brainstorm types of activities that will help students to achieve the selected content in the unit of work. Sequence learning activities in a logical order as shown in this example.

In this unit of work, students will be engaged in these learning experiences, as listed below. Refer to the detailed activities for information on what to do and how to conduct the activities.

- Investigate the school surroundings and find out how the land has been used.
- Collect information and describe examples of sustainable practices.
- Identify problems related to land use such as soil erosion, unused land and infertile land.
- Discuss the causes and effects of the problem identified.
- Suggest how to improve land.
- Compare how land is used in two different locations such as between schools, community and school or different parts of the school.
- Graphically present the information gathered.
- Select a site for their flowerbed.
- Estimate and measure size of the flowerbeds.
- Draw a plan of a flowerbed using a suitable scale and show where to grow the flowers: spacing between rows and plants, pattern, drainage, height of bed.
- Dig the soil and prepare a flowerbed with drainage.
- Apply compost and mulch in preparation for planting.

**Step 6** Develop an assessment plan

An assessment plan includes assessment details such as assessment tasks, criteria, assessment methods and recording methods. Students have to perform assessment tasks to demonstrate their understanding of the learning outcomes. Indicate how to record student's achievement of learning outcomes. Refer to sample units of work.

**Step 7** Estimate the time required

Estimate the time required to complete the unit of work. Consider duration of the integrated unit of work by looking at the types of learning activities. You may decide on the unit duration by considering subject time allocation and timetable. For example the activities in this unit of work is estimated for a period of two weeks when considering the time allocations for the subjects.

- Mathematics 180 mins.
- Social Science 180 mins.
- Making a Living 360 mins.

**Step 8** List relevant resources

List the tools, equipment and other materials required to teach a specific activity. In this example, resources have been identified for each specific activity and are incorporated into the teaching program.

**Step 9** Develop teaching programs

Develop a teaching programs for the unit of work. The learning activities are organised logically and centred on the project. Consider the time allocation for each subject area and develop a teaching program that includes teaching learning activities, teaching strategies, assessment tasks and resources.

## Sample 1: Integrated unit of work

### Grade 7

**Unit of work:** Design and prepare a flowerbed

**Purpose:** The purpose of this unit is to let students apply the knowledge and skills gained in this unit and consider the importance of sustainable land management practices. They will apply this knowledge by designing and preparing a flowerbed. They will compare areas of garden beds by estimation and apply the rules for calculating areas.

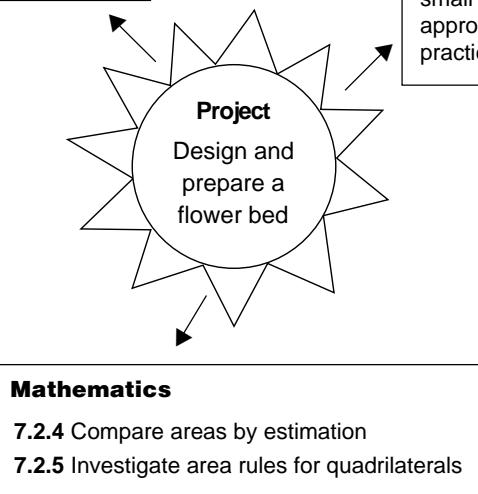
### Learning outcomes

#### Social Science

**7.1.4** Describe national and regional sustainable practices related to the natural environment and propose solutions to problems

#### Making a Living

**7.1.1** Investigate and compare consequences of mismanagement of land and water resources and plan, design and undertake a small project using appropriate management practices



## Unit content

In this unit of work, students will learn these knowledge, skills and attitudes.

| Knowledge   | Skills  | Attitudes  |
|---|---|--|
| <p>Students will demonstrate an understanding of</p> <ul style="list-style-type: none"> <li>the causes and effects of mismanagement of land (Making a Living)</li> <li>importance of soil cultivation (Making a Living)</li> <li>meaning of the terms 'sustainable practice', 'reuse', 'recycle' (Social Science)</li> <li>sustainable practices in relation to land management (Social Science)</li> <li>resources that can be reused and recycled (Social Science)</li> <li>rules for calculating area (Mathematics)</li> </ul> | <p>Students will develop the skills to</p> <ul style="list-style-type: none"> <li>design a plan of a flowerbed (Mathematics and Making a Living)</li> <li>dig and prepare a flower bed (Making a Living)</li> <li>apply compost (Making a Living)</li> <li>research relevant sources for information on sustainable practices, resources that be reused and recycled (Social Science)</li> <li>describe sustainable practices, resources that can be reused and recycled (Social Science)</li> <li>apply problem solving skills (Social Science)</li> <li>comparing by estimation (Mathematics)</li> <li>calculations — multiplying, adding (Mathematics)</li> <li>apply area formula in a practical situation (Mathematics)</li> </ul> | <p>Students will develop attitudes of</p> <ul style="list-style-type: none"> <li>caring for land (Making a Living and Social Science)</li> <li>appreciating and respect for careful use of the natural environment (Making a Living and Social Science)</li> </ul> |

## Integrated teaching and learning activities

| Subject areas          | Learning activity   | Teaching strategies | Assessment task                              | Materials          | Comments  |
|------------------------|---|---------------------|--|--------------------|---|
| <b>Making a Living</b> | <ul style="list-style-type: none"> <li>investigate school surroundings and identify problems related to land use such as soil erosion, unused land</li> <li>discuss the causes and its effects of the problem identified</li> <li>compare how land is used in two different locations such as between schools, community and school or different parts of the school</li> </ul> | excursion           |  | pen and paper      | Collect samples of each students work   |
| <b>Social Science</b>  | <ul style="list-style-type: none"> <li>collect information and describe examples of sustainable practices</li> <li>suggest how to improve the land</li> <li>graphically present the information gathered</li> </ul>   |                     | Assignment:: identify a problem on land use  |                    | This is an ongoing activity to be collected at completion of the unit of work |
| <b>Making a Living</b> | <ul style="list-style-type: none"> <li>select a suitable site to make a flower bed</li> </ul>   | excursion           |  |                    |   |
| <b>Maths</b>           | <ul style="list-style-type: none"> <li>estimate and measure size of the flower bed</li> <li>draw plan of the flowerbed showing where to grow the flowers (spacing between rows and plants, pattern, drainage and height of bed)</li> </ul>  | demonstration       | Students make a scale drawing of a flowerbed | tape measure ropes |   |
| <b>Making a Living</b> | <ul style="list-style-type: none"> <li>dig soil and prepare a flowerbed with drainage</li> <li>apply compost and mulch in preparation for planting</li> </ul>   | demonstration       | Students prepare the flowerbed               | digging tools      | Observe and assess students as they perform the task                          |

## Assessments for the unit of work

| Assessment methods  | Assessment Task                              | Criteria  | Recording method                             | Comments |
|---|--|---|--|----------|
| <b>Teacher analyses students' work samples</b>              | Students make a scale drawing of a flowerbed | Scale drawing will show <ul style="list-style-type: none"> <li>the title</li> <li>an accurate scale</li> <li>where to plant flowers</li> <li>total area of the actual flowerbed</li> </ul>  | Checklist                                    |          |
| <b>Observation of students performing the task</b>          | Students prepare the flowerbed               | Students will <ul style="list-style-type: none"> <li>loosen the lumps of soil</li> <li>measure correct width and length</li> <li>level the top of the flowerbed</li> <li>remove stones, sticks, dead roots</li> <li>apply compost and add mulch</li> </ul>                                | Ongoing observations recorded on a checklist |          |
| <b>Teacher collects and analyses students' work samples</b> | Assignment identify a problem on land use    | Present information that <ul style="list-style-type: none"> <li>identifies one land use problem</li> <li>describes its cause and effects</li> <li>suggests possible solutions</li> <li>states those individuals or groups responsible to take action on a recommended solution</li> </ul> | Class list                                   |          |

## Sample 2: Project unit—constructing sawdust stove

### Grade 8

**Strand:** Better living

**Substrand:** Making things

### Learning Outcome

Making a Living **8.2.4** Investigate the appropriateness of materials for specific purposes and use their imagination to plan, design, make and evaluate a product relevant to their needs

### Purpose

The purpose of this unit is to allow students to use the knowledge and skills they have gained to investigate appropriate materials required to construct sawdust stove. Students will use their imagination to plan, design and construct sawdust stove for their own use or for sale. In this project, students will apply relevant skills and knowledge from other subjects to complete the project and create a meaningful learning environment.

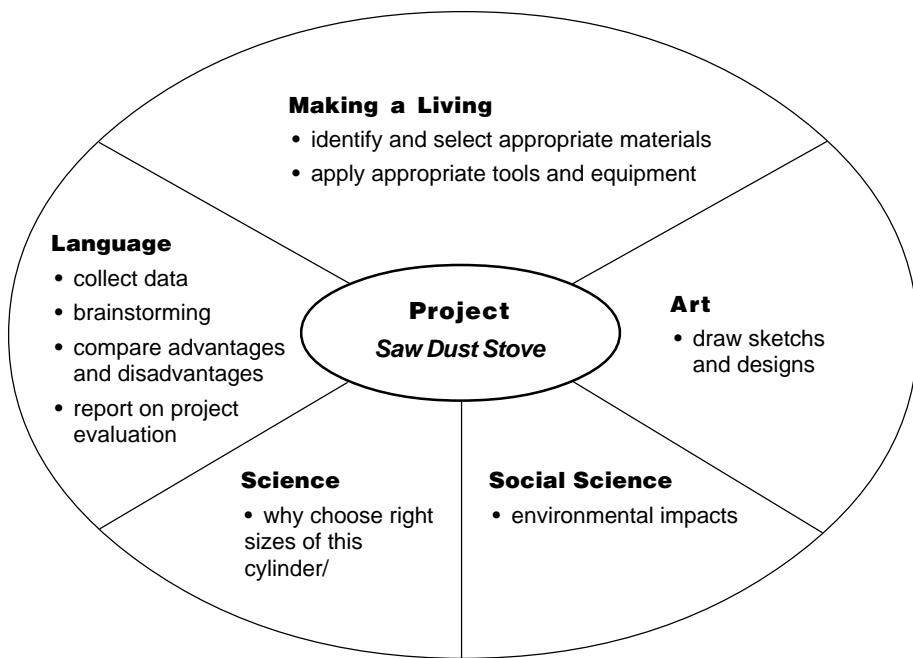
### Indicators

Students will be achieving this purpose when they

- collect data about different stoves used for cooking,
- compare advantages and disadvantages of using a sawdust stove,
- identify and select appropriate materials,
- apply appropriate skills for construction,
- use appropriate tools and equipment,
- demonstrate specific project skills such as:
  - sketching and designing,
  - selecting right sizes or tin and cylinder,
  - handling tools,
  - measuring and cutting of the cylinder,
  - fitting in the pipe, tube and sawdust,
  - costing,
  - demonstrating,
  - advertising.

### Identify integrated teaching and learning activities

**Step 1** Brainstorm possible teaching and learning activities and organise these activities using a web.



**Step 2** Sequence the learning activities for each subject using the Making a Living processes of investigation, planning and designing, implementing or producing, marketing and evaluation.

**Step 3** Identify resources required for each of the learning activities.

**Step 4** Identify the assessment tasks for the selected learning activities.

**Step 5** Draw up an integrated program.

**Integrated Teaching and Learning Activities**

| <b>Week</b>      | <b>Process skills</b>         | <b>Subject</b>  | <b>Activities</b>   | <b>Resources</b> | <b>Assessment task</b>   |
|------------------|-------------------------------|-----------------|---|------------------|--|
|                  | <b>Investigation</b>          | Language        | <ul style="list-style-type: none"> <li>ask questions and collect data</li> <li>identify potential markets for the sawdust stove</li> </ul>  |                  | <p><i>Note: You should select the outcomes from those subjects you want to assess and then plan assessment tasks to do so.</i></p> |
|                  |                               | Science         | <ul style="list-style-type: none"> <li>collect information on how heat is transferred in different materials such as sawdust, air, pot</li> </ul>   |                  |  |
| <b>1</b>         |                               | Making a Living | <ul style="list-style-type: none"> <li>identify and select appropriate materials</li> <li>identify and collect appropriate tools and equipment</li> <li>observe different models of stoves used in the community</li> </ul>   |                  | <p><i>You should not try to assess all the outcomes in an integrated unit of work.</i></p>   |
|                  |                               | Social Science  | <ul style="list-style-type: none"> <li>discuss environmental impacts of using a sawdust stove in comparison with open fire and other types of stoves</li> </ul>   |                  |  |
|                  | <b>Planning and Designing</b> | Making a Living | <ul style="list-style-type: none"> <li>identify list of resources and where to obtain them</li> <li>calculate cost of materials</li> <li>estimate expected income</li> </ul>  |                  |  |
|                  |                               | Science         | <ul style="list-style-type: none"> <li>design and experiment different cylinders used for making a sawdust stove</li> </ul>   |                  |  |
|                  |                               | Language        | <ul style="list-style-type: none"> <li>write an action plan for constructing a stove</li> <li>what to do, by whom and when</li> </ul>   |                  |  |
|                  |                               | Arts            | <ul style="list-style-type: none"> <li>draw sketches and a scale drawing of the stove</li> </ul>  |                  |  |
| <b>2 &amp; 3</b> | <b>Implementation</b>         | Making a Living | <ul style="list-style-type: none"> <li>collect and assemble all materials in a central location</li> <li>observe different models and a demonstration on making a sawdust stove</li> <li>work in group or individuals to construct a sawdust with guided instruction and supervision</li> </ul> |                  |  |
|                  |                               | Science         | <ul style="list-style-type: none"> <li>discuss different ways heat is generated for cooking</li> </ul>  |                  |  |
| <b>4</b>         | <b>Marketing</b>              | Language        | <ul style="list-style-type: none"> <li>prepare an advertisement</li> </ul>  |                  |  |
|                  |                               | Making a Living | <ul style="list-style-type: none"> <li>pricing and selling</li> <li>keep records of sale</li> <li>demonstration on how to use a sawdust stove</li> </ul>  |                  |  |
|                  | <b>Evaluation</b>             | Language        | <ul style="list-style-type: none"> <li>reflect on the process of making a sawdust stove</li> <li>identify problems encountered and make suggestions for improvements in the future</li> </ul>   |                  |  |

# 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 centred approach to learning. Teachers must provide real life and relevant learning experiences for students to practise and develop critical and creative thinking, problem solving, and decision-making in what they produce. Consider how students learn in order to select appropriate teaching and learning strategies. There are three major ways of learning new information.

## 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 processes 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 the field or place of work. Students discover new knowledge as they practise the skill in a real life situation. Students are actively involved in learning by doing and interacting with the work environment using ‘all their senses’ of learning.

Making a Living emphasises the experiential learning approach for students to achieve the Syllabus learning outcomes.

## 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 experiences,
- promote critical thinking and problem solving,
- encourage interaction with a range of individuals and contexts,
- 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 to 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,
- providing opportunities for problem solving, decision-making and taking action,
- providing students with opportunities to reflect upon their own learning, knowledge, values, attitudes and skills.

**Summary of teaching strategies**

The process skills of investigation, planning, implementation and evaluation are essential and fundamental for teaching Making a Living. In each unit of work, students are expected to investigate, plan, implement and evaluate their projects. Teachers need to use a range of teaching strategies in their units of work. The table below provides examples of teaching strategies to use in each of the process skills.

| <b>Process skills</b> | <b>Teaching and learning strategies</b>   |  |
|-----------------------|---|--|
| <b>Investigation</b>  | <ul style="list-style-type: none"><li>• brainstorming</li><li>• surveys</li><li>• structured questionnaires</li></ul> | <ul style="list-style-type: none"><li>• focus groups</li><li>• problem solving</li></ul> |
| <b>Planning</b>       | <ul style="list-style-type: none"><li>• projects</li><li>• problem solving</li></ul>                                  | <ul style="list-style-type: none"><li>• group work</li></ul>                             |
| <b>Implementation</b> | <ul style="list-style-type: none"><li>• demonstration</li><li>• modelling</li></ul>                                   | <ul style="list-style-type: none"><li>• field trips</li><li>• group work</li></ul>       |
| <b>Marketing</b>      | <ul style="list-style-type: none"><li>• individual sales</li></ul>  | <ul style="list-style-type: none"><li>• group sale</li></ul>                             |
| <b>Evaluation</b>     | <ul style="list-style-type: none"><li>• discussion</li><li>• group work</li><li>• journal writing</li></ul>           | <ul style="list-style-type: none"><li>• problem solving</li><li>• seminars</li></ul>     |

## Common teaching methods

### Brainstorming

Brain storming activities are intended to stimulate discussion amongst the students. Students share their ideas, beliefs and opinions with others.

Brainstorming can be done in small groups or as a whole class to generate ideas about suitable projects. Ideas generated by the whole class can be summarised by the teacher while ideas generated in small groups should be recorded by a group record keeper for presentation to the group or the teacher. Brainstorming is best used when students are considering relevant types of projects and deciding on the type of activities.

### How to conduct brainstorming

- In groups discuss and list all possible ideas students think about, that are relevant to the topic.
- Combine the ideas and summaries them under headings.
- Select and prioritise the ideas.

### Surveys

A survey is a type of investigation activity used to gather information and evidence from various sources. Students collect and analyse information from surveys to make informed decisions on what action to take. The information gathered from the survey is presented in tables or graphs by each student or in small groups. Students will analyse and prioritise the information and then make a decision on the most relevant project

### Sample questions for interviews

- What product or produce is in demand and needed in the local area?
- Who should produce what product?
- What are the inputs for production and are these available?
- Can I make some income and profit from the project?
- What impact can the project have on the community?

### How to do a market survey

- Identify the purpose of the survey.
- Decide on the type of information to collect from the target audience.
- Identify key questions to collect qualitative and quantitative data.
- Identify how the information will be collected by the students.
- Collect information from target audience.
- Analyse and present the information in the form of tables or graphs.
- Make decisions about what to do to address the need identified in the survey.

### **Focus groups**

A focus group consists of selection of people representing the major stakeholders from the community. This group of individuals are brought together to gather specific information for particular purpose. The discussion in a focus group is aimed at finding specific information such as a group of individuals who are experts in agriculture, or carpentry could be part of a focus group.

#### **How to organise a focus group**

- Identify the topic, issue, problem or purpose of the meeting or discussion for focus group such as find specific information on how to set up a fish farm or grow vanilla.
- Identify the people who could represent the community and who will contribute purposefully to the discussion.
- Arrange a meeting room, arrange time and inform members accordingly.
- Conduct the meeting.
- Determine the recommendations and priorities.
- Use this information to plan projects.

### **Projects**

A project-based approach is highly recommended for Making a Living as it offers real life experience for students to develop their understanding and skills. Projects promote experiential learning through practical activities. Students plan and implement projects that are relevant to their needs and the local situations.

#### **Examples of projects**

- meat bird-broiler
- vegetable garden
- cane making
- weaving blinds
- string bag making
- drawing, dance, drama or music
- vanilla farming
- sewing a dress
- mangrove management
- making a coffee table
- building a fence around the school
- preparing charts, posters for World Food Day, Environment Day, Population Day, International and National Women's Day, Independence Day.

**How to do a project**

- The teacher and the students identify a relevant project. A project could be an income generating activity, an opportunity to address an issue or a problem in the community, an activity that address students or community needs and interests, an activity that focuses on community activities.
- In groups, investigate how the project is useful in the local community.
- Conduct an investigation to establish the need for the project.
- Determine resources available for the selected project and where to obtain these resources.
- Plan activities for the project and implement the project.

**Problem solving**

Problem solving encourages students to investigate an area of interest and establish strategies and actions to solve or minimise the problem. This approach helps students to develop critical and analytical thinking and apply decision making and problem-solving skills in a relevant situation.

**How to use problem solving**

- Identify problems for discussion.
- Consider factors contributing to the problem.
- Discuss strategies or options for correcting the problem.
- Consider the consequences of adopting a particular solution to a particular problem.
- Consult resource people and organisations for assistance.
- Decide and apply corrective measures to correct the problem and take actions for future planning and implementation.

**Demonstrations**

Demonstrations are done by a teacher or another specialist to show students the steps and correct techniques for completing an activity. Students observe and follow the demonstration accurately and apply the skills in a given task or project. A lesson demonstration is essential when teachers are introducing new concepts or skills for students to apply in their respective projects. Teachers could demonstrate how to make compost or how to sew hemstitch.

**How to do a Demonstration lesson**

- Identify a topic or the skill to be demonstrated.
- Prepare resources needed for the lesson.
- Prepare the location or field for demonstration.
- Trial the demonstration to check for accuracy, time required, resources needed and determine location.
- Arrange and inform students about their comfort, dangers and safety aspects. Individual student need to have appropriate equipment such as hats, boots, mosquito repellents, and sun cream.
- Carry out the demonstration using your own model before expecting students to perform. Use students during demonstrations if there is a lack of resources.
- Allow sufficient time for student practice on their own projects.

## **Models**

Models are used for teaching ideas and demonstrate important skills or concepts. Students refer to the model to visualise a concept, technique or an idea and apply these in their individual projects. Teachers need to have their own models to show students the skills and the processes to complete a product.

There is a range of teaching models that could be included:

- actual models constructed to size say for example a dress, a coffee table or crops grown by teacher,
- models of diseased specimens,
- scale models of buildings such as models of a nursery, a piggery, a chicken house, stock yard,
- cross-section models such as cross-section of a flower or an egg,
- working models farms, mangroves and businesses in the community for field trips.

### **How to use a Model**

- Identify a type of model for a specific purpose.
- Design and construct a model to use as a sample with students. This could be a chicken house, garden, string bag, dress or table.
- Students observe models and adapt ideas into their own models or projects.
- Display students finished products in the classroom and at a school fete or during field days.

## **Field Trips**

Field trips are organised to take students to observe projects or activities that are not available in the school area. Students have firsthand experience as they observe actual practice and develop ideas on how to use what they observe in a practical situation.

### **How to organise a field trip**

- Identify possible sites and visit the place before the trip.
- State the purpose of the trip and types of learning activities.
- Establish the time of the visit and how long it will take to get to the site.
- Prepare students for the visit by organising transport, lunch, dress, expected behaviour and appoint group leaders.
- Make sure to get permission from the parents and the owners of the site you are visiting.
- Get some parents to support you as assistants on the trip.
- Arrange class feedback and debriefing based on educational needs and answers to key questions.
- Write to thank people who were involved in the field trip.

## Group Work

Group work is important in situations when resources are limited and projects have to be done. Group activities stimulates thinking and create opportunities for social interaction among students and teachers. The activities encourage sharing of responsibilities and resources to achieve common purposes. Students engage in problem solving, developing skills in leadership, decision-making and cooperative learning.

### How to conduct a group work

- Identify the task for group work.
- Organise 4 to 5 students in small groups. Consider gender balance.
- Select a group a leader and a reporter.
- Allocate tasks and give enough time for the groups to complete the task.
- Supervise and facilitate discussion or group work.
- Groups can report on their findings or display their work.

## Resource People

A resource person is an expert who is specially trained in a particular skilled area. Individuals or organisations from the local community can be invited to share their knowledge and experiences with the students in situations where the teacher lacks indepth knowledge and skills about a particular topic.

### How to use resource people

- Identify what students are expected to learn.
- Identify and make contact with individuals or organisations.
- Inform resource person about the topic and what you expect students to learn.
- Make arrangements and confirm dates for the visit.
- Arrange students to thank speaker.

## Discussions

The main purpose of a discussion is for the group to orally consider ideas, facts and opinions about a particular topic. This allows for exchange of ideas of mutual concern and interest so that students may reach consensus on what steps and actions to take. It helps create interest and involvement, exchange of knowledge and experiences. Students express ideas freely, have a sense of ownership of developments and reached decisions democratically by consensus.

### How to conduct discussions

- Identify a topic of discussion.
- Organise class into small groups or conduct as a whole class activity.
- Allow adequate time for individuals to share their ideas.
- Groups present ideas to the whole class.
- Summarise group discussions and decide on a plan of action.

## **Seminar**

Seminars are oral presentations by students based on selected topics of interest. Topic could be based on the importance, value and accomplishments made in the selected projects. Students conduct research on a specific topic and report to a larger group of audience. Presentation can be done in the form of tables, figures, diagrams, graphs, flow charts research or maps.

### **How to conduct a seminar**

- Select a topic or a problem for the seminar presentation.
- Explain how to collect and present information.
- Provide a guide for students to collect information from a range of sources.
- Schedule a time for students to do their presentations.
- Students present their seminar and collect feedback on the presentation.

## **Journal Keeping**

A journal is a written record of occurrences, happenings, experiences and reflections of one's work or performance. Journal keeping is an effective tool to assess progress of students and teachers in order to adjust their activities. Students need to keep a journal throughout their projects and reflect on the successes and failures in the project and use the information to make improvements in the future. Journals can be in the form of a day book, a lesson plan, a project diary.

### **How to keep a journal**

Use a book or a folder and record the following information:

- records of the date and time entries are made,
- an accurate description of what happened and what I did,
- what I did that is different,
- what I could have done differently from the plan,
- what I plan to do next.

Reflect on the information and make adjustments to improve performance.

# Program planning

Teaching programs are developed by teachers to structure learning and demonstrations of learning outcomes over a period of time. A program represents long term plans, describing how units of work contribute to the achievement of learning outcomes described in the Syllabus. In Making a Living a program may represent long term plans such as a yearly plan for Grades 6, 7 and 8 or a short term plan such as a term or a weekly plan.

## Programming using learning outcomes

A teaching program may consist of one unit of work or many units of work. Units of work usually have a particular theme or topic and contain a sequence of lessons. The main purpose of the program is to help students to achieve the learning outcomes and selected content relevant to the outcomes. The learning outcomes in Making a Living are broad to allow teachers to develop specific relevant school-based programs dependent on the following:

- geographical context of the school,
- students' learning needs,
- teacher's expertise,
- community needs and issues,
- school authorities, cultures, beliefs and values,
- facilities, tools and equipment,
- available resources.

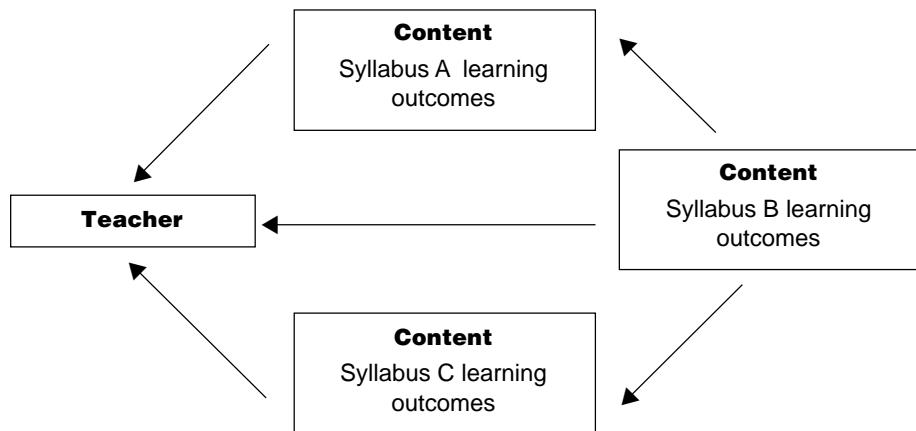
Factors to consider when planning programs include:

- Syllabus learning outcomes,
- student learning needs and styles,
- climatic conditions,
- local cultures, beliefs and values,
- time allocation of 360 minutes or 6 hours per week,
- short term and long term projects so other aspects of Making a Living can be taught while the long term projects are being developed,
- efficient and innovative use of resources.

## School-based program

A school-based program is a useful way of monitoring students' achievements of a range of learning outcomes for each grade in Making a Living over a period of time. Schools need to develop their own innovative school programs relevant to student needs, resources and facilities.

Teachers need to work collaboratively with other teachers and members of the community to decide on appropriate units of work or projects that students will do to achieve the learning outcomes. When the community is aware of the program they will support with the student learning.

**How to plan a school-based program**

- Consider what knowledge, skills and attitudes students need to learn at the completion of the program.
- Become familiar with the learning outcomes in Grades 6, 7 and 8 that students will achieve. Learning outcomes identify the products of learning.
- Organise or cluster selected outcomes based on a unit of work (project) specifically for Making a Living or across the other subjects.
- List possible units of work for students to achieve over a period of time.
- Sequence the units of work so that all students have an opportunity to achieve the learning outcomes.
- Teachers can sequence units of work based on the school year calendar or a village calendar. A village calendar includes:
  - seasons,
  - environmental changes,
  - agricultural activities,
  - traditional seasonal activities such as hunting, gathering, food processing, trading,
  - cultural, social and religious activities, sporting, community and national events,
  - school terms,
  - months of the year.
- Decide on the units of work: projects for a long term plan and a short term plan.

**Long term plan**

A long term plan consists of units of work that needs to be implemented over a period of 1 to 2 years. Teachers need to consider types of project for each Grade and include this in the school based program. Long term planning is essential when planning for a three year program. This will enable students to implement all the process skills and complete the production stages from the beginning to the end of the project. Students will need to carry out investigation, planning, marketing and evaluation of the project. Listed on the next page are some long term plans students can try out in their project activities.

Some suggested long term projects include

- animal production such as cattle, sheep goats, bee-keeping, fish farming and reef management,
- crop production such as coffee, cocoa, rubber, vanilla, orchard, rice, growing bananas,
- other units could include a school beautification project, ecoforestry, ecotourism, forest or marine conservation or a community project.

#### **Example Plan - A cocoa garden (3 year plan for one Grade only)**

| Time        | Year 1  | Year 2                                 | Year 3                                     | Units of Work                             |
|-------------|---|--|--|---|
| <b>2003</b> | <b>Grade 6</b><br>Investigation and Planning, Making or producing |  |  | Cocoa Nursery<br>6.1.3, 6.3.3             |
| <b>2004</b> |   | <b>Grade 7</b><br>Making or producing, |  | Care and Management<br>7.1.3, 7.2.2       |
| <b>2005</b> |   |  | <b>Grade 8</b><br>Marketing and evaluating | Harvesting and processing<br>8.1.1, 8.3.3 |

#### **Short term plan**

A short term plan consists of units of work that are implemented within less than 6 months. Teachers will decide on the duration of the unit of work to include in a yearly and term plans. Some examples of short term units are sago cooking, making candleholders, pencil cases or sewing boxer shorts. This is an example of a short term project that consists of many units of work for Grades 6, 7 and 8. This is also known as the yearly plan.

#### **Example of a yearly plan for Grades 6, 7 and 8**

|                                  | Term 1                                     | Term 2  | Term 3  | Term 4   |
|----------------------------------|--|---|---|--|
| <b>Grade 6 Learning outcomes</b> | 6.1.1, 6.1.2, 6.2.1                        | 6.2.4, 7.2.2, 6.2.4                                 | 6.1.2, 6.1.2, 6.3.3, 6.2.2                    | 6.3.1, 6.1.3, 6.3.2  |
| <b>Units of work</b>             | Beautification around classroom            | Cane curtains or wall divider                       | Improve school water source                   | Cooking using traditional methods<br>Community resources map |
| <b>Grade 7 Learning outcomes</b> | 7.2.4<br>7.1.2                             | 7.1.1, 7.1.3, 7.2.1                                 | 7.1.3,<br>8.1.3, 8.3.3<br>7.3.1, 7.3.2, 7.3.3 | 7.3.3  |
| <b>Learning outcomes</b>         | Making pillow cases                        | Establishing a vegetable garden<br>Nutrition garden | Raise poultry                                 | Raise poultry  |
| <b>Grade 8 Learning outcomes</b> | 8. 2.1<br>8.3.1, 8.3.2, 8.1.3              | 8.2.1   | 8.2.2, 8.3.3                                  | 8.2.4  |
| <b>Units of work</b>             | Maintain vegetable garden<br>Reforestation | Cooking and selling                                 | Making a coconut scraper                      | Sewing a shirt   |

**Suggested sample of a term program**

Project: Making pillow cases    Grade 7    Learning Outcome 7.2.4

| Week | Student activities  | Resources   | Assessment tasks   |
|------|---|---|--|
| 1–2  | <ul style="list-style-type: none"> <li>• identify and collect samples of pillow case</li> <li>• assessment of fabric type</li> <li>• justification and selection of pillow cases and fabric</li> </ul>  | <ul style="list-style-type: none"> <li>• pillow case samples</li> <li>• fabric pieces</li> </ul>  | <ul style="list-style-type: none"> <li>• selection of fabric</li> <li>• type of pillow case</li> </ul>   |
| 3–4  | <ul style="list-style-type: none"> <li>• design a selected pillow case pattern</li> <li>• list of sewing procedures</li> <li>• identify correct resources</li> <li>• estimate cost of production</li> <li>• correct timing of completion</li> <li>• estimate profits of pillow case</li> </ul>  | <ul style="list-style-type: none"> <li>• paper and pencil</li> </ul>  | <ul style="list-style-type: none"> <li>• pillow case designs</li> </ul>  |
| 5–8  | <ul style="list-style-type: none"> <li>• collect fabric, tools and equipment</li> <li>• assemble or prepare tools and equipment</li> <li>• measure and cut fabric following specification</li> <li>• neaten the edge by pinning and sewing</li> <li>• do embroidery stitches</li> <li>• fold sides of the pillow case</li> <li>• complete pillow case by cutting off unwanted thread</li> </ul> | <ul style="list-style-type: none"> <li>• sewing machine, needle, thread, embroidery cotton, scissors, tape measure, pattern, designs, tacking pins</li> </ul> | <ul style="list-style-type: none"> <li>• measurement and cutting skills</li> <li>• neatening</li> <li>• embroidery stitches</li> <li>• complete project</li> </ul> |
| 9–10 | <ul style="list-style-type: none"> <li>• display complete pillow case</li> <li>• advertisement for sale</li> <li>• correct pricing</li> <li>• sell the product and keep records of sale</li> <li>• calculate profit or loss</li> </ul>  | <ul style="list-style-type: none"> <li>• paper, pen, pins and table</li> </ul>  | <ul style="list-style-type: none"> <li>• advertisements</li> <li>• record keeping</li> </ul>   |

*(Sample unit of work developed and trialled by teachers Mrs Lorrain Sanana and students and the Resurrection Primary School, Popondetta)*

**Timetabling**

Making a Living requires a flexible timetable to allow students to develop skills to appropriate levels of competence and to achieve the learning outcomes. The table below provides possible ways to use the allocated 360 minutes per week. Teachers and schools can choose the most appropriate option or develop their own.

**Suggested time break up**

| Option 1       | Option 2                          | Option 3                          | Option 4                         |
|----------------|-----------------------------------|-----------------------------------|----------------------------------|
| 4 x 90 minutes | 2 x 90 minutes<br>1 x 180 minutes | 2 x 60 minutes<br>2 x 120 minutes | 3 x 90 minutes<br>2 x 45 minutes |

# Assessment, recording and reporting

Assessment is the ongoing process of identifying, gathering, and interpreting information about progress of students' achievement of the learning outcomes for each Grade. Assessment is based on the learning outcomes described in the Syllabus for each Grade. It is an integral part of teaching and learning and not just a test or exam at the end of project or unit of work. Assessment in Making a Living is criterion referenced. Criterion-referenced assessment describes a students achievement and progress in comparison to predetermined criteria. The criteria are drawn from the learning outcomes set in the Syllabus.

Each learning outcome in the Making a Living Syllabus describes what students should **know** and be able to **do** in the Strands: Managing Resources, Better Living and Community Development. Teachers will identify learning outcomes and select appropriate assessment tasks for students to do. Teachers decide on an appropriate method of recording and reporting information about students' achievements of the learning outcomes.

Assessment is continuous so that teachers can collect a range of evidence of students' learning in a unit of work. Make sure that the assessment methods are fair to all students by:

- giving students enough time to practise the skills and knowledge before they are assessed,
- providing them with feedback on their strengths and weaknesses and identify areas for improvement,
- providing more than one opportunity to demonstrate what they have learnt,
- assessing the teaching and learning described in the unit of work.

## How to assess students' achievement in Making a Living

These are some ways to collect evidence of students' learning.

### Observation of students performing practical skills

Teacher defines the assessment task and develops a set of criteria to assess students as they work on their projects. For example in a garden project the teacher develops criteria to assess student weeding, mulching, fertilising and staking.

### Analysis of students' products

This method is used to assess products or items produced by students. Teachers use selected criteria to judge how well students use their skills or techniques to make a completed product. Examples of products may include, bilums, flowerbeds, pencil cases, dresses and garden produce.

**Tests**

Tests are given to students to assess their understanding of knowledge and skills covered in a unit of work. A series of written questions that require written responses are developed to gather evidence about students' learning. The type of questions can include:

- multiple choice,
- short answer,
- long answer,
- essay questions.

**How to collect evidence of student's achievements**

There are many ways of recording information about students' progress and achievements. In Making a Living teachers observe students in their practical projects and collect valid and reliable evidence of students' achievement of learning outcomes. The following are some ways of recording in Making a Living that teachers can select and adapt in their learning activities.

**Observation records can be kept using:**

- checklists that show how each student meets the assessment criteria,
- class checklists that show how well each student meets the assessment criteria,
- class grid where teacher records date and make notes about each student according to assessment criteria.

**Analysis of students' product**

Teacher lists the assessment criteria on a small grid and attaches this to each students' work showing which of the criteria they met and criteria not achieved.

**Using student portfolios**

Teacher keeps a portfolio for each student in the class. A student's portfolio will usually consist of:

- a range of students' work samples such as scaled drawings and project plans,
- record sheets for each project including criteria and level of achievement,
- teacher's comments on learning progress,
- records of interviews or discussions with students.

**Reporting**

Reporting requires teachers to provide clear and accurate information to students, parents and guardians about students' progress and achievement. This information is based upon the evidence collected by teachers and the judgements made about students' achievement of learning outcomes. It needs to be presented in such a manner that it is easily understood by parents, guardians and students. It also requires teachers to use criteria for assessment and not only allocate marks.

## Process of planning for learning and assessment

When planning units of work:

- identify the learning outcomes that are being assessed,
- identify the knowledge, skills and attitudes that students will demonstrate,
- select an appropriate assessment task that students will perform to demonstrate achievement of learning outcomes,
- develop assessment criteria and share with students that these criteria:
  - describe what students will do if they are completing the activity at the required standard which might mean that they are working towards the outcome, achieving the outcome or have achieved the outcome,
  - are explicit and are designed to help students to be successful,
  - provide a focus for teaching,
  - help students to assess each other consistently and fairly.
- develop a manageable way of recording and storing assessment information,
- allow time for students to carry out an assessment task and evidence can be drawn from ongoing observation of performance or specific assessment tasks,
- make judgments using assessment criteria and the learning outcomes.

## Developing assessment tasks for a unit of work

In each unit of work, teachers are required to identify assessment tasks and assessment criteria.

Assessment tasks are activities that students do to demonstrate their achievement of the learning outcomes. Assessment criteria are statements that are used to judge the quality of student performance. The process for this example is based on the unit of work 'Making a Desktop Cover' in the unit of work in this guide.

### 1. Check the outcomes and indicators in the unit of work.

### 2. Develop the assessment tasks. Ask the following questions

- Are there a manageable number of tasks?
- Do they relate to the knowledge, skills and attitudes described in the learning outcomes and indicators?
- Is the assessment method selected the best way of collecting evidence of students' achievement?
- Is there a balance of assessment methods? In other words are students demonstrating their learning in different ways such as through written tasks and practical work?

**3. Develop an assessment plan describing what to assess and how to assess and record.**

Here is an example of an assessment plan for the unit of work on ‘Making a Desktop Cover’.

| Assessment methods  | Assessment task  | Criteria  | Recording method                           | Comments |
|---|--|---|--|----------|
| <b>Teacher analyses student sample of work</b>            | Students will draw a neat scale drawing to show the correct measurement for the timber frame | The plan will include, <ul style="list-style-type: none"> <li>the title of the scale drawing</li> <li>correct length and the width of the frame: 50 cm x 50 cm</li> <li>the position of the nails showing the distance apart accurately: 3 cm apart</li> <li>the accurate scale</li> </ul>        | Record students achievement on a checklist |          |
| <b>Teacher analyses of students product</b>               | Students will produce a completed frame  | The frame must <ul style="list-style-type: none"> <li>be neat, firm and strong joints</li> <li>have nails that are 3 cm apart</li> <li>have nails that are straight and about the same height</li> <li>match with the scale of drawing</li> <li>be the correct length and width: 50 cm</li> </ul> | Class sheet with the criteria              |          |
| <b>Observation of the skills to make a desk top cover</b> | Make a desk top cover  | The students should <ul style="list-style-type: none"> <li>tease the wool between the nails to form a pattern</li> <li>tie knots firmly at the intersection</li> <li>cut wool halfway in the intersections.</li> <li>cut wool about 2 rows in from the edge</li> </ul>                            | Checklist                                  |          |

**Example**

**Assessment task 1:** Draw a neat scaled drawing to show the correct measurement for the timber frame

**Assessment criteria:** You will need to write neatly on your drawing the following:

- title of the scaled drawing,
- size of the timber,
- length and the width of the frame,
- position of the nails showing the distance apart accurately,
- accurate scale.

**4. Decide on a manageable way to record student achievement on the assessment task**

For example, for this task the teacher will be required to use a checklist to record student achievement of assessment task and criteria.

| Recording code                                | Assessment criteria   |
|---|---|
| 3 Met the criteria to a high standard         | A Included title  |
| 2 Met the criteria to a satisfactory standard | B Showed size of timber   |
| 1 Needs further practice                      | C Showed length and width of frame<br>D Showed positions of nails and distances apart<br>E Gave an accurate scale |

**How to record student achievement**

Use a class list to show student achievement

| Students names      | Assessment task: Scale drawing |   |   |   |   |
|---------------------|--------------------------------|---|---|---|---|
| Assessment Criteria | A                              | B | C | D | E |
| Naomi               | 3                              | 1 | 1 | 1 | 1 |
| Sina                | 3                              | 3 | 3 | 3 | 3 |
| Kila                | 3                              | 2 | 1 | 3 | 1 |
| Kakas               | 2                              | 2 | 2 | 2 | 2 |
| Appa                | 1                              | 1 | 1 | 1 | 1 |

**5. Use the evidence gathered from the units of work and other activities related to the same outcomes to make decisions about whether the students:**

- have achieved the outcomes,
- have partly achieved the outcomes,
- need further practice to achieve the outcomes.

## **Resources**

The following are lists of reference books and organisations able to provide essential information to teach Making a Living.

### **Reference books**

All reference books developed for teaching Agriculture, Basic Technology and Commerce for Grades 7 and 8 are recommended to support the teaching of Making a Living.

Essential Books produced by the Department of Education (DOE)

- Agriculture Criterion Reference Assessment
- Basic Technology for Grade 7 and 8
- Handbook on Soils for Papua New guinea, A. Grade 7 - 10.
- Improved Subsistence Farming. Grade 7 and 8 Teachers Guide
- Food Crop Cultivation Volume 1 and 2 Grade 7 -10

Essential Books not published by DOE

- Agriculture for Melanesia. Book 1, Longman Publishing
- Agriculture for Melanesia. Book 2, Longman Publishing
- Commerce for Melanesia. Longman Publishing
- Home Economics for Papua New Guinea. Book 1 and 2, Longman Publishing
- Liklik Buk(1986). Liklik Book Centre, ATDCI
- Organising School Agriculture. Longman Publishing
- Technology for Melanesia. Longman Publishing

## Organisations that can assist

| Organisation                               | Area of Concern  | Postal Addresses                                       |
|--|--|--|
| <b>Government Organisations</b>            |  |  |
| Department of Environment and Conservation | Environment  | P. O. Box 6601 Boroko NCD                              |
| Department of Agriculture and Livestock    | Agriculture and livestock                                      | P. O. Box 417, Konedobu                                |
| Fresh Produce                              | Information on fruits and vegetables                           | FPDC Momase<br>P.O.Box 3001, Lae<br>Phone/Fax 472 2737 |
| <b>Non Government Organisations</b>        |  |  |
| World Wide Fund for Nature                 | Conservation of terrestrial and marine environments<br>Posters | P. O. Box 8280, Boroko. NCD<br>Phone 323 9855          |
| The Nature Conservancy                     | Conservation of marine environment                             | P. O. Box 2750, Boroko. NCD<br>Phone 323 0699          |
| Research and Conservation Foundation       | Conservation education   | P. O. Box 1261, Goroka. EHP<br>Phone 732 3821/ 3211    |
| Conservation International                 | Marine conservation  | P. O. Box 106, Waigani. NCD<br>Phone 323 1532          |
| Village Development Trust                  | Sustainable development, forestry, ecotourism                  | P. O. Box 2397, Lae. Morobe Province<br>Phone 472 1666 |
| Conservation Melanesia                     | Environment  | P. O. Box 735, Boroko. NCD<br>Phone 323 2758           |
| Community Development Initiative           | Community Development  | P. O. Box 383, Port Moresby. NCD<br>Phone 322 5653     |
| Mahonia na Dari                            | Marine conservation education                                  | P. O. Box 697, Kimbe. WNB<br>Phone 983 4241            |

## Glossary

|                                |   |
|--------------------------------|---|
| <b>Biodegradable</b>           | materials that can be broken down by living organisms   |
| <b>Biodiversity</b>            | variety of life in ecosystems   |
| <b>Built environment</b>       | environment that has been changed by people and is put together with man made things  |
| <b>Concurrently</b>            | things happening at the same time   |
| <b>Conservation</b>            | sustainable use or wise use management of natural resources such as plants, water and soil  |
| <b>Ecological systems</b>      | community of plants and animals interacting with each other and with the environment  |
| <b>Enterprising</b>            | taking and making opportunities to exploit the potential of a particular product or business                                      |
| <b>Extinction</b>              | the stage at which a plant or animal die out completely without having a living relative  |
| <b>Inclusivity</b>             | a range of different experiences and perspectives presented to students so that all students' experiences are valued              |
| <b>Preservation</b>            | keeping plants and animals safe from harm or injury   |
| <b>Recycle</b>                 | treat waste materials so that new products can be manufactured from them  |
| <b>Reduce</b>                  | cut down on the amount of resources used  |
| <b>Reuse</b>                   | use resources again   |
| <b>Strands</b>                 | structural organisers of each learning area, describing the knowledge, skills and process distinctive and essential to each area. |
| <b>Sustainable development</b> | manage and use resources wisely to ensure future generations have benefits  |

# Appendix

## Time allocations for upper primary subjects

In Upper Primary the subjects to be taught and their time allocations per week are:

|                      |             |
|----------------------|-------------|
| Arts                 | 180 minutes |
| Language             | 180 minutes |
| Making a Living      | 360 minutes |
| Personal Development | 240 minutes |
| Social Science       | 180 minutes |
| Science              | 180 minutes |
| Mathematics          | 180 minutes |

All subjects are core subjects and must be allocated the required number of minutes per week. Each subject is equally important for Integral Human Development. Making a Living and Personal Development have more time allocated because of their practical orientation.

All subjects can be externally assessed (*National Assessment and Reporting Policy, 2003*).