
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.

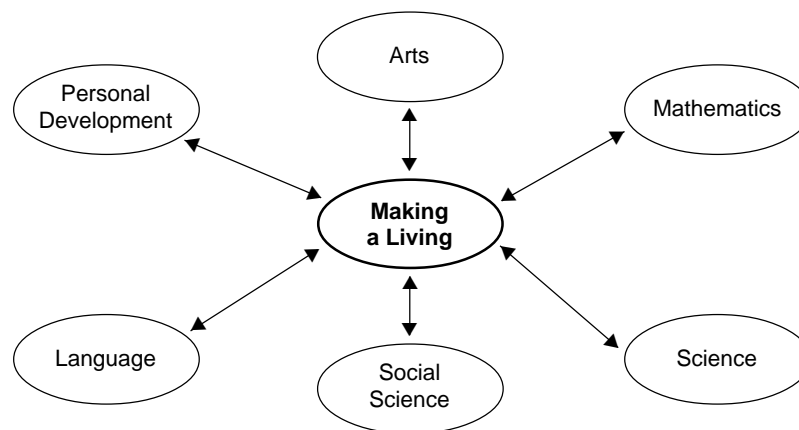
Links with Elementary, Lower Primary and Secondary

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

<p>Investigation</p>	<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"> • observe and ask questions to gather information from a range of sources • consult a wide range of groups or individuals to provide assistance • conduct a market survey to identify needs and opportunities • conduct interviews to gather evidence • collect and record data • draw conclusions that are supported by evidence • explore viability of potential projects • analyse evidence by selecting, comparing and categorising information • engage in democratic decision-making processes
<p>Planning and designing</p>	<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"> • generate plans and proposals for creatively solving problems or completing a task • consider options, identify priorities and constraints • experiment with different ways to achieve their aims • choose appropriate resources and equipment • appraise plans and actions • develop criteria to assess how well their intended techniques and products meet the requirements of the problem or tasks • draw graphical representations and use technical language to explain design concepts and production processes • plan activities in a logical sequence and develop action plans • calculate estimated cost and expected income of production • use imagination to consider alternative options when designing a product
<p>Making or producing</p>	<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"> • work individually or cooperatively to produce quality products for specific purposes • apply appropriate production techniques • use equipment safely • follow specifications of a plan to produce a product • apply care and management techniques appropriate to project • manage time and resources effectively • monitor and control quality in creating products and undertaking processes • adapt ideas and plans in response to constraints and difficulties • produce products to a high standard of quality • apply post harvest techniques in food production • maintain a regular supply of high quality production to meet individual and market needs
<p>Marketing or using</p>	<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"> • calculate selling prices and keep records of sales • develop and use competitive marketing strategies • advertise and sell products to a targeted audience • calculate cost of production and determine profit • use a range of selling techniques • keep records of production • undertake banking procedures and consider other forms of financing and investments
<p>Evaluating</p>	<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"> • assess products using assessment criteria • determine whether the products and processes have met the intended outcome • identify success, failures and constraints • make suggestions for improvements in the quality of the product or process • reflect on, consider their initial intentions, plans and actions, and suggest modifications for future improvement of the process and quality of their products • analyse the viability of the project to decide on continuation or possibility of undertaking alternative projects

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



	Grade 6	Grade 7	Grade 8
Recommended knowledge	<p>Land resources</p> <ul style="list-style-type: none"> plants such as native vegetation, crops soil, land domestic animals wildlife minerals such as gold, copper, oil forests, swamps, wetlands <p>Water resources</p> <ul style="list-style-type: none"> marine life (fish, shellfish, sharks, whales) oceans mangroves coral reefs fresh water such as rainwater, water supply rivers and creeks, swamps, lakes <p>Human needs</p> <ul style="list-style-type: none"> food, shelter, water, air, clothing love, protection and safety <p>Importance of resources</p> <ul style="list-style-type: none"> support human life source of livelihood valued for a range of purposes such as aesthetic, monetary, ecological 	<p>Consequences of mismanagement</p> <ul style="list-style-type: none"> loss of biodiversity and ecosystems soil erosion low food production water pollution reduction in availability of resources <p>Mismanagement practices</p> <ul style="list-style-type: none"> exploitation such as logging over fishing continuous cropping on a same piece of land dynamite fishing pollution such as inappropriate disposal of waste lack of recycling, reducing and reusing 	<p>Current practices</p> <ul style="list-style-type: none"> subsistence farming, gardening/fishing improved subsistence farming, gardening commercial farming and fishing terrace farming traditional fishing, hunting and gathering practices <p>Sustainable resource management</p> <ul style="list-style-type: none"> permaculture mixed cropping reusing resources conserving resources sharing resources — partnerships marine protected areas organic farming
Recommended skills and suggested activities	<p>Appropriate ways of managing resources:</p> <ul style="list-style-type: none"> conservation and preservation of plants and animals reforestation sustainable fishing, hunting and gathering practices protecting coral reefs protection and care of natural environments crop rotation grazing management water conservation practices such as reducing wastage, eliminating pollution sustainable development wild life management areas 	<p>Appropriate management practices:</p> <ul style="list-style-type: none"> soil management and cultivation such as erosion control, weed control, mulching animal husbandry such as nutrition, stock control, housing, breeding, health and hygiene forest management such as selective felling, replanting, fire control, care and protection of reefs and mangroves such as limiting catch size, reducing amount of trees removed, limit pollution reduction of waste in rivers and water supplies, revegetation of river banks sustainable development 	<p>Possible projects to generate income:</p> <ul style="list-style-type: none"> market vegetable garden fish farming such as sea cucumber, clam shells, trout bee keeping mixed farming poultry such as layers or meat birds cash cropping such as cocoa, coffee, oil palm betelnut, vanilla rice growing butterfly farming flower growing plant nursery piggery, rabbit production ecotourism

Substrand: Environment

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





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

Substrand: Crop and animal management

	Grade 6	Grade 7	Grade 8
Learning Outcome	6.1.3 <i>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</i>	7.1.3 <i>Explain appropriate crop management and animal husbandry practices and demonstrate these through undertaking a practical project</i>	8.1.3 <i>Plan, design and implement a crop or animal project suited to local conditions and resources aimed at generating an income</i>
Making a Living Process	<p>Investigate: Students investigate and share when they</p> <ul style="list-style-type: none"> observe and ask questions to gather information about value of crops and animals consider the nutritional value of crops and animals and identify food that belongs to the three food groups discuss advantages and disadvantages of traditional and commercial crops and animal management 	<p>Make or produce: Students make or produce when they</p> <ul style="list-style-type: none"> Plan and implement crop and animal project work individually or cooperatively on a crop or animal project apply crop management techniques on selected crops apply animal husbandry practices on identified animals 	<p>Plan and design: Students plan and design when they</p> <ul style="list-style-type: none"> identify suitable animal or crop project for local conditions list resources needed to undertake project calculate costs and estimated income develop a n action plan <p>Make or produce: Students make or produce when they</p> <ul style="list-style-type: none"> apply appropriate management practices to animal or crop project maintain high quality production to meet market needs adapt ides and plans in response to constrains and difficulties <p>Market: Students market when they</p> <ul style="list-style-type: none"> calculate cost and keep records of sales develop and use competitive marketing strategies advertise and sell products to targeted audience under take banking procedures and other forms of financing



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