Making the Difference Programme

Module 9: Creating a Sustainable South Africa

This module relates to the following Outcomes for the Learning Areas:

Natural Science
- Learning outcome 1: Scientific Investigations
- Learning outcome 2: Constructing Science Knowledge
- Learning outcome 3: Science, Society and the Environment

For the educator:

This module focuses on Sustainability Education and aims to provide educators with a resource, which will facilitate meaningful teaching and learning in the classroom. It takes a closer look at how the environment, society and the economy are interlinked and how our everyday actions impact on the environment. It aims to provide practical solutions to the growing crisis of living unsustainably.

By the end of this module, learners will be able to:

- Understand what Sustainability is.
- Understand that all forms of life are linked and therefore impact directly on each other.
- Understand the impact that society and the economy have on the environment.
- Understand that we have to change the way we view the world in order to ensure our future and that of future generations.
- Implement the practical solutions provided in the module.
Dear Educator,

As we realise that everything we do impacts on our planet, our environment and our future, “sustainability” is fast becoming the watchword of the 21st century. Understanding what it means and what it demands of us is crucial.

As a business – and as a corporate citizen – Woolworths has recognised this and last year embarked upon a journey, which we call our Good business journey, that will see us make fundamental changes in the way we work as a company and the way we live as South Africans in order to bring about positive change in our communities, our country and our world. Our Good business journey addresses four key areas: accelerating transformation, driving social development, protecting the environment and addressing climate change. Whether it is in helping to create sustainable economic growth by supporting small enterprises or by offering customers a wider range of organically grown products, sustainability is a theme that runs through virtually every aspect of this multi-faceted plan.

Woolworths has also long believed that best way to build a better future for our country is to develop the potential within its children. We recognise that you, as an educator, play a vital role in helping South Africa’s young people understand the principles and practices of sustainability. This module, Creating a Sustainable South Africa, is designed to help you in this important task.

We hope you find it useful, and wish you all the best as you prepare young South Africans to meet the challenges of the future.

Sincerely,

Brian Frost
Chairman of the Woolworths Sustainability Committee
Dear Educator,

In light of the many challenges which are facing South Africa in terms of social and economic development, as well as the more global challenges of preserving natural resources while providing a growing population with good, healthy food and clean drinking water, we welcome this latest addition to the Woolworths Making the Difference programme.

The Sustainability module was prepared with the assistance of WCED personnel responsible for the Learning Area Natural Sciences to ensure the alignment of the module with the National Curriculum Statement.

The Western Cape Education Department believes you will find it of invaluable assistance in helping your learners achieve the required outcomes.

Yours sincerely,

[Signature]

Genevieve Koopman
Director: Curriculum Development
Dear Educator,

Welcome to Creating a Sustainable South Africa, a resource for Sustainability Education created by the Woolworths Making the Difference programme.

As we prepare future generations for positive participation in a world which is facing critical environmental, social and economic issues, Sustainability is arguably one of the most important aspects of 21st Century education.

However, Sustainability Education presents some daunting challenges. Some of the biggest is that the thinking, principles and information about Sustainability are relatively new. Although there is currently a lot of information in the media about Sustainable Lifestyles, few educators have had the benefit of having studied Sustainable Living in the course of their own education and training, and they may have little or no experience of actually living sustainably themselves.

With this in mind, we have prepared this practical resource to help you in delivering meaningful teaching and learning in your classroom.

Sustainability Education is not simply about learning facts and figures – it requires changing the way we see the world, adopting new attitudes and expressing different behaviour. It’s about changing the way we live our lives so that we consciously care well for ourselves, for each other and for our environment. The benchmark of Sustainability Education success, is if it results in learners, educators, parents and whole school communities changing their day-to-day behaviours so that a sustainable South Africa is created.

For this to happen, Sustainability Education should be guided by the following important principles.

The 8 Top Principles for Sustainability Education:

1. **Systems Thinking** – knowing that everything is interconnected and interrelated, and that nothing exists in isolation;
2. **Lifetime Learning** – making a commitment to discovering and learning on an ongoing basis, and changing attitudes and behaviours to accommodate new knowledge and experiences;
3. **Environmental Learning** – understanding the natural world, its systems and its inhabitants, and taking the environment into account in all our decision making and activities;
4. **Relationship Learning** – understanding that all learning is connected across different disciplines and that Sustainability Education can feature in all learning areas;
5. **Effective Use of Technology** – using sound environmentally friendly, human-friendly technologies as solutions to the world’s problems;
6. **Community-based Learning** – knowing what is going on in your own community, and being actively involved in thoughtful environmental, social and economic upliftment; in other words, Thinking Globally and Acting Locally.
7. **Family Involvement** – all change begins at home. Children learn their attitudes and behaviour from their role models. As adults, we must be the change we want to see in the world. We cannot expect future generations not to think as we think, or not to act as we act ourselves.
8. **Personal Responsibility** – every individual, child or adult, impacts on the world at every moment. Our choices determine whether those impacts are positive or negative. When we are responsible for looking after ourselves, each other and the Earth, we are able to make choices that have positive impact.

We hope that you enjoy using this resource.
overview of module

1. What is sustainability?
   1.1. Crisis of unsustainability
   1.2. Past and future
   1.3. Influence on SA
   1.4. Global warming and deforestation
   1.5. Impact of a water shortage
   1.6. Food chains
   1.7. Web of life (interdependence of organisms)

2. Sustainability and the environment
   2.1. Resources
   2.2. Your ecological footprint
   2.3. Recycling
       Case Study: Badger friendly honey

3. Sustainability and society
   3.1. Society and human well-being
   3.2. Food and you
   3.3. Impact of our food choices on the environment
       Case Study: Organic choices

4. Sustainability and the economy
   4.1. The quality of life in the community
   4.2. Sustainable agriculture
       Case Study: Madumbi farmers
Lesson Format

For this lesson, you will be required to prepare a flashcard with the quotation below, which will form the introduction of the lesson. This will be followed by an explanation of sustainability.

Educator Notes

We do not inherit the Earth from our ancestors. We borrow it from our children – Native American Proverb

In short it means that we have to provide for ourselves in such a responsible way that our children and their children’s children can still provide for themselves. We have only one Planet Earth, so we have to take care of it.

Definition of sustainability

Since the early 1970’s many different international conferences and meetings have been held to discuss the world’s environmental crisis and the urgent move towards sustainable living. Over the years, scientists, conservationists, economists, government leaders and many other experts have come up with a range of definitions of sustainability.

Worldwide, the most commonly used definition of sustainability is:

... the ability to provide for the needs of the world’s current population without damaging the ability of future generations to provide for themselves... - World Commission on Environment and Development. Our Common Future. 1987

The way a worldview changes

A linear, unsustainable view, acknowledging no relationships and interconnections, regarding the economy as a dominant system:

environment  society  economy

This is a mechanical, industrialised worldview that fails to see that the economy is a human system existing to serve people, and that people and their systems cannot exist separately from the environment.
A move towards a more sustainable view, acknowledging that there is some relationship and connection, yet still regarding the economy as the dominate system:

This is a worldview that acknowledges that there are relationships and connections between these 3 systems. However, the environment and people are strategically positioned in service to the economy.

A sustainable worldview, acknowledging interdependence and interconnection, regarding the economy and society as important human systems nesting within the greater system of the environment:

This is also called a systemic view – it shows a deeply connected web of life where people and their human systems are very much part of, and dependent on the Earth. Even if we live in cities and support our lives with a system based on money, we still need healthy soil, air, water, plants and animals in order to live healthy lives.

**1.1 crisis of unsustainability**

**Learning Area: Natural Sciences**
LO 2: Constructing Science Knowledge.
AS 1: Recalls meaningful information.
AS 2: Categorises information.

**Group Activity**
Ask learners the question, “How do people live unsustainably?” Build on the examples listed by the learners.
- Learners work in pairs.
- Ask learners to write down a list of things that they think are damaging the earth e.g. littering, smoking, cutting down too many trees, smoke from factories, exhausting minerals, excessive fishing etc.
- Each group chooses a team leader who will report back.
- Once learners have compiled their lists, group similar examples together.
Class Discussion

• Educator writes the learners' answers on the board.
• Consolidate:
  – We are using too much of the earth's resources such as land, soil, trees and fish
  – Discuss land, air and water pollution
Right now we are using too much and wasting too much. As a result, we are compromising the ability of future generations to provide for themselves.

1.2 past and future

Educator Notes

Prepare 3 maps indicating an increase in population over a set period of time.

Class Discussion

• What is the main difference? (As time passed, the population increased from very few to millions of people.)
• What does this mean with regard to the following:
  – Housing for everyone
  – Water for everyone
  – Farming – producing food for everyone
  – Factories (Industries) – manufacturing goods
  – Transport (Think about how Mom/Dad complains about traffic in the morning)
  – Electricity supply
• As the population increases, the more the demand for housing, water, food, factories, transport, electricity supply increases.

Worksheet 1

Learners interpret a graph which illustrates the effects of an increase in population on natural vegetation. Worksheet provided on page 28.
1.3 influence on SA

**Educator Notes**

South Africa is generally regarded as a ‘developing’ country, but we have well-developed industrial, business and agricultural sectors.

Problems we are already facing:
- Deterioration of natural environment
- Massive soil erosion
- Collapsing fisheries
- Species extinction
- High levels of air, water and soil pollution
- Climate change

In addition, South Africa also faces the problems of a developing nation:
- Poverty
- Skills shortages
- Electricity supply
- Transport systems
- Unemployment
- Inadequate housing
- Healthcare
- High crime rates

1.4 global warming & deforestation

**Educator Notes**

People pollute the air by burning large amounts of coal and oil. The fuels release poisonous gases into the atmosphere which forms a sort of blanket over the earth. This causes heat that would normally escape the atmosphere, to be trapped and in this way temperatures rise. Take a look at the following illustration:

![Diagram showing the influence of global warming and deforestation](image)

**Lesson Format**

**Deforestation**

If learners do not mention “trees are cut down”, you can lead them by saying “Trees give life…”

Do you think this is true? Why?

Think about all the birds, animals, insects, etc. that have trees as their habitat.
**Educator Notes**

**People cut down too many trees because:**
- People use too much wood to make products such as paper, tissues, toilet paper, furniture and tools.
  We also use wood for fire (energy and heat).
- People want to clear forested areas to use the land for grazing cattle or for planting Soya.
- People don’t plant enough trees to replace those they have cut down.

**Trees are important because:**
- They clean the air by taking in carbon dioxide and releasing oxygen, which animals and people need.
  The terminology resources, global warming and deforestation can be used, but not as a requirement for assessment.

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**1.5 the impact of water shortage**

**Learning Area: Natural Sciences**
LO 1: Scientific Investigations.
AS 1: Plans investigations.
AS 2: Conducts investigations and collects data.
AS 3: Evaluates data and communicates findings.

**Lesson Format**

Now that learners understand the concept of sustainability, we need to ask the next important question:

**DOES THIS ISSUE ONLY HAVE AN IMPACT ON HUMANS?**

Tell the learners that the headline in the newspaper this morning read:

**“DROUGHT STRIKES SOUTH AFRICA”**

Brainstorm possible ideas for solving this problem (e.g. using bath water or bottling excess clean water while brushing their teeth etc.)

**Worksheet 2**

**Experiment**
Learners investigate the effects of a water shortage. Three kidney beans are wrapped in cotton wool - one is well soaked, one lightly sprinkled with water and the other left dry.
Learners record observations over a 2-week period.
Worksheet provided on page 29.

**Follow-up**

**Class discussion**
How does a shortage of water affect plants, animals and humans?
Conclusion: plants, animals and humans are dependant on each other.
1.6 food chains

Lesson Format

Prepare a chart with the food chain below. Discuss the food chain with the learners.

Food passing from one living thing to another is called a food chain. A food chain starts with energy from the sun which is called solar energy. Green plants produce food from the sun’s energy and are called producers. Animals cannot make their own food and therefore depend on green plants for their food. Some animals feed on plants and are called herbivores. Animals that eat other animals are called carnivores. Some animals eat both plants and animals are called omnivores. All animals, even carnivores, depend on green plants for food because they eat the animals that eat the plants.

Pose the question: What could cause a break in the chain?

Encourage learners to come up with examples like animals that are killed for money, e.g. elephant tusks, for fur or exotic dishes.

Wheat needs solar energy to make food
The mouse eats the wheat
The cat eats the mouse

Learner Activity

1. Learners list two food chains.
2. They may illustrate their food chains.
3. Learners with the longest or most original food chains can be rewarded.
1.7 the web of life (interdependence of organisms)

Learning Area: Natural Sciences
LO 2: Constructing Science Knowledge.
AS 1: Recalls meaningful information.
AS 2: Categorises information.

Lesson Format

For this lesson, you will need: one ball of string or wool, blank white paper, markers.
Revise the concept of a food chain. Depending on the number of learners in your class, divide the class into one large group or several groups. As you will need space to move around, you may want to conduct the activity outside or in a hall. Using the table of 35 different elements in a bushveld ecosystem, assign each of 5-6 learners one item from the list. Make sure to assign soil, water and the sun to learners. Do not assign two learners the same item.
# Educator Notes

## An Example of Different Elements in a Bushveld Ecosystem

<table>
<thead>
<tr>
<th>No</th>
<th>Elements of Ecosystem</th>
<th>Linked to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Sun</td>
<td>All living organisms i.e. all plants &amp; all animals</td>
</tr>
<tr>
<td>2</td>
<td>The Soil</td>
<td>All living organisms i.e. all plants &amp; all animals</td>
</tr>
<tr>
<td>3</td>
<td>The Air</td>
<td>All living organisms i.e. all plants &amp; all animals</td>
</tr>
<tr>
<td>4</td>
<td>The Water</td>
<td>All living organisms i.e. all plants &amp; all animals</td>
</tr>
<tr>
<td>5</td>
<td>Acacia karoo</td>
<td>The tree feeds the soil with nitrogen through its roots; The tree’s fallen branches, leaves and seed pods mulch the soil around it; The tree takes in carbon monoxide and releases oxygen into the air; Bees pollinate its flowers while feeding on nectar; Weavers (birds) nest in it; A Goshawk (a bird) hunts the Weavers nesting in the tree; A Drongo (a bird) hunts the bees visiting the tree; Elephant eats its leaves and branches; Giraffe eats its topmost leaves and shoots; Impala eats its lower leaves and fallen seed pods; Warthog eats its fallen leaves and seed pods.</td>
</tr>
<tr>
<td>6</td>
<td>Bees</td>
<td>Pollinate flowers, make honey that Honey Badgers and people collect for food</td>
</tr>
<tr>
<td>7</td>
<td>Weavers (bird)</td>
<td>Make their nests of grass and eat grass seeds, food for the Goshawk</td>
</tr>
<tr>
<td>8</td>
<td>Drongo (bird)</td>
<td>Roosts and hunts in trees, eats insects</td>
</tr>
<tr>
<td>9</td>
<td>Elephant</td>
<td>Eats grass, leaves and branches, feeds the soil with its droppings</td>
</tr>
<tr>
<td>10</td>
<td>Giraffe</td>
<td>Eats leaves, pods and twigs, feeds the soil with its droppings</td>
</tr>
<tr>
<td>11</td>
<td>Impala</td>
<td>Eats grasses and leaves, feeds the soil with its droppings, food for Lions and people</td>
</tr>
<tr>
<td>12</td>
<td>Warthog</td>
<td>Eats seeds, fruits and leaves, feeds the soil with its droppings, food for Lions and people</td>
</tr>
<tr>
<td>13</td>
<td>Carissa edulis</td>
<td>Bulbuls (birds) eat its fruit, people eat its fruit; People use its roots as medicine, it’s fallen leaves and fruits mulch and protect the soil around it, earthworms live in the soil around it</td>
</tr>
<tr>
<td>14</td>
<td>Bulbuls (birds)</td>
<td>Eat fruits</td>
</tr>
<tr>
<td>15</td>
<td>Earthworms</td>
<td>Aerates the soil because they burrow, feed the soil with their droppings</td>
</tr>
<tr>
<td>16</td>
<td>Mole</td>
<td>Aerates the soil because it burrows, eats earthworms, food for a Mole Snake</td>
</tr>
<tr>
<td>17</td>
<td>Zyzygium cordatum</td>
<td>The trees fallen branches, leaves and fruit pods mulch the soil around it; the tree releases oxygen into the air; Butterflies pollinate its flowers while feeding on nectar; Wood Lice live and feed under its bark; a Tree Agama (a lizard) lives in the tree and feeds on the insects that live and feed there; Grey Go-away birds visit and feed on its fruit; Doves roost in its branches at night; A Mole Snake lives in a burrow amongst the trees roots; A pair of Eagles nest in the tree and hunt the Mole Snake; Bushbabies live in the tree and feed on its fruit and Wood Lice; Porcupine eats its fallen leaves and fruits; Lions lie in the tree’s shade; People collect the tree’s berries to brew a drink and use its wood.</td>
</tr>
<tr>
<td>18</td>
<td>Butterflies</td>
<td>Feeds on nectar of flowers, pollinates flowers, food for insectivorous birds and animals</td>
</tr>
</tbody>
</table>
## Educator Notes

### An Example of Different Elements in a Bushveld Ecosystem cont.

<table>
<thead>
<tr>
<th>No</th>
<th>Elements of Ecosystem</th>
<th>Linked to</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Wood Lice</td>
<td>Live under the bark of trees, food for Lesser Bushbabies</td>
</tr>
<tr>
<td>20</td>
<td>Tree Agama (Lizard)</td>
<td>Lives in trees, eats insects</td>
</tr>
<tr>
<td>21</td>
<td>Grey Go-Away Birds</td>
<td>Roosts and nests in trees, germinates seeds from fruit trees in its droppings</td>
</tr>
<tr>
<td>22</td>
<td>Doves</td>
<td>Roosts and nests in trees, eats seeds, food for a Caracal and People</td>
</tr>
<tr>
<td>23</td>
<td>Mole Snake</td>
<td>Lives in the soil, eats insects and field mice</td>
</tr>
<tr>
<td>24</td>
<td>Eagles</td>
<td>Roost and nest in trees, eats snakes, lizards, mice and locusts</td>
</tr>
<tr>
<td>25</td>
<td>Bushbabies</td>
<td>Live in trees, eats both fruit and insects, feeds the soil with its droppings</td>
</tr>
<tr>
<td>26</td>
<td>Porcupine</td>
<td>Eats fallen leaves and fruits</td>
</tr>
<tr>
<td>27</td>
<td>Lion</td>
<td>Eats Warthogs and Impala, feeds the soil with its droppings</td>
</tr>
<tr>
<td>28</td>
<td>People</td>
<td>Use wood for warmth, cooking, tools, housing and furniture Use grass for housing and mats, use many plants for medicine Eat fruits, honey and meat</td>
</tr>
<tr>
<td>29</td>
<td>Grass</td>
<td>Protects topsoil, food for locusts, Weavers, Doves, Field Mice, Elephants and Impala, used by people for housing and mats</td>
</tr>
<tr>
<td>30</td>
<td>Field Mouse</td>
<td>Lives in grasses, eats grass, food for Honey Badgers and Eagles</td>
</tr>
<tr>
<td>31</td>
<td>Artemisia afra – a shrub also called: Wild Wormwood, Umhloysne, Lengana</td>
<td>Leaves and stems used by people to treat many ailments such as coughs, cold, fevers, rashes, wounds, bites and stings</td>
</tr>
<tr>
<td>32</td>
<td>Dung Beetle</td>
<td>Breaks down the droppings of large mammals, feeding the soil</td>
</tr>
<tr>
<td>33</td>
<td>Honey Badger</td>
<td>Eats fruits, locusts and honey</td>
</tr>
<tr>
<td>34</td>
<td>Caracal</td>
<td>Eats Doves</td>
</tr>
</tbody>
</table>

### Learner Activity

1. Each learner must write down their assigned organism or element on a piece of paper.
2. Stand in a circle.
3. Choose one learner to stand in the middle of the circle.
4. The learner in the centre of the circle will be given the ball of wool or string.
5. Learner in the centre will:
   a. Name the organism he or she is.
   b. Give the name of an organism he or she depends on for survival. For example, a bird may depend on a worm or fresh water, while corn might depend on the sun or healthy topsoil and topsoil may depend on clean water and nitrogen.
6. The learner in the centre then tosses the ball of wool or string to that organism it depends on, holding on to one end of the string.
7. Repeat the process until each learner is holding a piece of the string.
Learner Activity cont.

8. Once the string is tossed to either water or the sun, the learner playing that part should then toss the string to an organism he or she supports. It is okay if a learner gets the ball of string more than once.

9. Once each learner has a piece of string, introduce a man-made change in the environment, such as global warming or deforestation.

10. Any learner (playing the role of the assigned organism) potentially overcome by that change drops the piece of string and exits the circle or sits down. Any organism relying on the affected organism will also be influenced and should drop the string.

11. Eventually nearly all organisms are affected. The learners will see the results of a small change in the food chain. Will this scenario also affect the sun and/or water?

12. This process is repeated as many times as necessary using different scenarios so that only the sun is still holding the string (water may also still be holding the string, depending on how severe you decide to make the climate change process).

Class Discussion

Concluding thoughts:

• What happens to the food chain when a change occurs?
• How can humans negatively affect the chain?
• How can humans affect the food chain positively?
• Give an example of an animal that has already become extinct.
• Was this due to a human factor or natural causes?
• Describe the two main examples of how humans cause changes in the environment – thus causing broken food chains.
  - Give two examples of natural causes breaking the food chain.
  - Why should we care whether other species survive or not?
What does Planet Earth give us?

- It provides organisms with the resources they need to live i.e. sun, air, water, soil and food.
- It keeps everything in a delicate balance with the cycles of birth and death, thereby preventing over-population and over-use of resources.

Examples of these are:

<table>
<thead>
<tr>
<th>Non- Renewable (Finite) resources</th>
<th>Renewable resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>Trees</td>
</tr>
<tr>
<td>Oil</td>
<td>Fish</td>
</tr>
<tr>
<td>Minerals</td>
<td>Animals</td>
</tr>
<tr>
<td>• These are naturally occurring substances that lie under the earth's surface.</td>
<td>Plants</td>
</tr>
<tr>
<td>• Once mined, it cannot be replaced.</td>
<td>• These are part of nature's renewable life cycles.</td>
</tr>
<tr>
<td>• We need to save as much energy as possible.</td>
<td>• Unfortunately people use these resources at such a demanding rate, that it does not have the natural time it needs to be replaced.</td>
</tr>
<tr>
<td>• Solar and wind power are alternative sources of energy that should be used.</td>
<td>• This is how species become extinct.</td>
</tr>
</tbody>
</table>

What do we give Planet Earth in return?

In one short word: WASTE

- Our modern human way of life generates a tremendous amount of waste.
- Our waste negatively affects the air, soil, water and the climate.
- We have to remind ourselves that no matter how advanced and technological we may have become, we still need lots of clean air and clean water, fertile soil, plants and animals.
- Polluted air, soil, and water cause poor health and a poor quality of life.

<table>
<thead>
<tr>
<th>Type of waste</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic</td>
<td>Un eaten food; garden refuse</td>
</tr>
<tr>
<td>Inorganic</td>
<td>Man-made e.g., plastics and polystyrene; chemical waste produced by manufacturing</td>
</tr>
<tr>
<td>Recyclable</td>
<td>Paper; metal; glass products</td>
</tr>
<tr>
<td>Poisons</td>
<td>Artificial fertilisers; pesticides used in farming</td>
</tr>
<tr>
<td>Gases</td>
<td>Made visible in the smoke of factories and vehicles</td>
</tr>
</tbody>
</table>

The World Wildlife Fund (WWF) estimates that people are grossly over-using the earth’s natural resources. If we continue doing this, we will need a second Planet Earth to sustain the human population by 2050!
2.2 your ecological footprint

Learning Area: Natural Sciences
LO 2: Constructing Science Knowledge.
AS 2: Categorises information.

Lesson Format

What is the Ecological Footprint?
Explain to the learners how we all leave footprints in the sand when walking along the beach. Draw attention to the fact that there are many different sizes of footprints in the sand. In the same way, we leave an imaginary footprint on our environment. The more resources we use and the more waste we generate, the bigger our footprint will be. We should all strive to have the smallest possible footprint.

Worksheet 3

Let us measure our class’s ecological footprint.

The Ecological Footprint Quiz
1. Explain to the class that they are going to participate in an Ecological Footprint Quiz. You are the quiz master.
2. The learners will get the chance to answer questions to determine whether the class has a big or a small Ecological Footprint.
3. Draw two columns on the board with the headings “Big Foot” and “Small Foot”.
4. For each correctly answered question, tick the “Small Foot” column. If the learners are unable to answer a question or if they answer incorrectly, tick the “Big Foot” column.
5. At the end of the quiz, add the ticks in each column to determine whether the class has a big or a small Ecological footprint.

Worksheet provided on page 30 and answers on page 31
2.3 recycling

Learning Area: Natural Sciences
LO 2: Constructing Scientific Knowledge.
AS 2: Recalls meaningful information.

Lesson Format

Prepare flashcards with the ‘Rs’ - Reduce, Re-use, Repair, Refill, Refuse, Recycle and Remember

You will need a bin-bag full of ‘rubbish’ – for suggested items see Waste List below. The educator will need labels of reduce, re-use, repair, refill, refuse, recycle. (Educator to make flashcards)

Waste list
- worn-out shoes
- a plastic milk bottle
- a paper plate
- an empty egg-box
- a plastic shopping bag
- a used teabag
- a bread-bag
- a newspaper
- a banana peel
- socks with holes

Introduction
Discuss the meaning of the ‘Rs’:
Reduce... the amount of waste created.
Re-use... an object either for its original purpose, or find another use for it.
Repair... a broken or torn item instead of buying a new one.
Refill... your empty containers.
Refuse... to buy or accept something that uses unnecessary packaging.
Recycle... your waste so that it can be broken down, reprocessed and re-manufactured.
Remember... to think before you put something in the bin - does it really need to be thrown away?

Ask the learners to think of at least one simple way in which they can do each of these things, e.g. getting their shoes re-heelied or re-soled, or putting waste food on a compost heap.

(Please note: ‘Recycling’ is often used incorrectly. Recycling an object means it is ‘broken down’ to return it to its material state so that it can then be re-manufactured. So, for example, if you are re-addressing an already used envelope, this is re-using because the item has not been ‘broken down’. But when our glass bottles are collected they are recycled because they are re-processed and re-manufactured.)

Group Activity

Set out the flashcards, reduce, re-use, repair, refill, refuse, and recycle.
1. As a class, learners unpack the bin-bag full of waste.
2. Learners categorise the contents according to whether they think it should have been reduced, re-used, repaired, refilled, refused or recycled.
3. Learners explain their choices.

Class Discussion

Once all the waste items have been correctly categorised:
- Discuss which of these items should not be thrown in the bin-bag.
- Which are the items that you can most easily keep out of the bin-bag by just changing your habits slightly?
- Which items do they think you would still throw away? Why?
- Can you think of a way to solve this problem?
- What could be done about waste that is generated in public and put in public bins?
Case Study 1
Woolworths, sustainability & the environment

Selling Only Badger-Friendly Honey Helps to Protect SA’s Biodiversity

Woolworths worked with Keith and Colleen Begg of the Endangered Wildlife Trust to develop Badger-Friendly honey in South Africa. We worked to raise consumer awareness of the issue, and we worked closely with conservation organisations such as the Endangered Wildlife Trust and beekeepers to establish a national badger-friendly initiative. A Code of Practice for the production of Badger-Friendly honey has been accepted and promoted by various beekeeping associations, the South African Bee Industry Executive, Nature Conservation, the World Wildlife Fund (WWF), WESSA and other NGO’s.

The importance of conserving the Honey Badger
Some years ago, the indiscriminate killing of the Honey Badger (Mellivora capensis) by bee farmers came to light. The Honey Badger is relatively small predator with a varied diet that includes rodents, reptiles, scorpions, spiders and the larvae of bees. As a top predator in many of its ranges, the Honey Badger plays an important role in maintaining a healthy balance in an ecosystem.

Do you know this animal?
This attractive and intrepid mammal is sparsely distributed from South Africa, through Africa to the Middle East. In this country it is listed in the Red Data Book of Mammals as a vulnerable species, indicating that they may become endangered in the near future if they are not properly protected. Despite a reputation for being surprisingly fierce, the Honey Badger is actually shy, reclusive and mostly nocturnal. They are found in various habitats, often outside of protected conservation areas. Honey Badgers are naturally attracted to beehives, seeking out the nutritious larvae of bees, rather than the actual honey.

Conflict with beekeepers
Beekeepers play a vital role in the South African farming economy, and not just for the honey that they produce. Bees are also specifically farmed so that they will pollinate orchards, and they are thus, very important to the South African fruit-growing industry.
The Honey Badger’s natural liking for bee larvae brings them into conflict with beekeepers as they can cause substantial damage and loss to the farmers. It has been common practice for beekeepers to indiscriminately set traps or deliberately poison the Honey Badger, contributing to its vulnerable status as a species.

A better solution
Woolworths began to work closely with conservation organisations and it was discovered that there are better solutions to this conflict - such as raising the hives out of reach of Honey Badger. Woolworths initiated a project to raise awareness, to develop a Badger-Friendly code of practice and actively encourage beekeepers to use alternative methods to protect their hives that did not impact negatively on the Honey Badger population in South Africa.

Commitment
Woolworths adopted a Badger-Friendly honey policy, ensuring that all honey sold by Woolworths nationwide has been produced without harm to Honey Badgers. Woolworths is committed to its Good business journey, an ongoing sustainability initiative that includes protecting South Africa’s biodiversity.
3.1 society and human well-being

Lesson Format

Discuss the following points with the class.

1. **What is a society?**
   In class, you sometimes work *individually* (working alone), in *pairs* or in *groups*. A society is a large group of people living together in such a way that the well-being of all individuals is ensured.

   If we have happy individuals, we’ll have happy families, happy communities, happy cities, societies and countries.

   Isn’t your class normally happy when your educator is happy? Educators are happy when the class understands the work or did well in a test. If you make your educator unhappy by behaving badly for example, you will be disciplined, which will in turn make you unhappy. **Our happiness is also affected by others and we often rely on others for our happiness.**

2. **What is human well-being?**
   You could introduce this concept by asking learners what they normally answer when someone asks them, “How are you?” (WELL, thank you)

   Human well-being requires clean air, clean water, safe food and good health. Humans also require safe homes with supportive families and plenty of opportunities to learn, to work, to have fun and to relate well with other people.

3. **Can people transform their societies?**
   Yes, they can. Because people create their own societies and keep them working, they are able to change them if they are unsustainable, by changing their attitudes and behaviours. Sustainable societies are characterised by the values, attitudes and behaviour of most of the people.

**Educator Notes**

Some of the values, attitudes and behaviour of sustainable societies are:

- respecting ourselves, others and our planet;
- including others – young and old, boys and girls, black and white, rich and poor, plants and animals;
- being responsible, being involved and taking action in your communities;
- taking care of your own health by eating well, exercising regularly and avoiding things that damage the body, like smoking or taking drugs;
- sharing with others and helping others;
- consistently caring for and assisting the most vulnerable people in your society.
3.2 food and you

Lesson Format

Discuss the following with your learners.
Who likes take-aways?
When was the last time you went to a restaurant?
Where and what did you eat at your family celebration?
How many times do you ‘braai’ per week?
When having a party or celebrating Christmas/Diwali/Eid, how important is the food that you eat?

BUT

Have you ever thought that the food you and your family (and your society) eats, has a direct impact on the environment?

Learner Activity

1. Learners are instructed to find out what their parents and grandparents ate years ago and how they prepared their food.
2. Learners have to draw a table comparing their own eating habits to those of their parents. Learners can compare e.g. what was eaten for breakfast, lunch, supper and snack time.
3. Learners to identify changes in the use of resources.

3.3 the impact of our food choices on the environment

Learning Area: Natural Sciences
LO 2: Constructing Scientific Knowledge.
AS 1: Recalls meaningful information.

Lesson Format

In this exercise, learners will explore the many ingredients that go into their favourite foods.
The learners work in small groups. This lesson will require three different sized “Food and You” Footprint Cut-outs for each group. (Refer to worksheet 4)

The cut-outs will be used as follows:
1. Food and You Small Footprint - For items requiring fewer resources, producing less waste, and requiring less production.
2. Food and You Medium Footprint - For items that require more resources, produce more waste, and require more production.
3. Food and You Large Footprint - For items that require the most resources, produce the most waste, and require the most production.

Discussion: Favourite Food
1. Make a list of the learners’ favourite foods on the board.
2. As a class, brainstorm all the components which make up one type of food.

Identifying Resources Used
1. Discuss where these foods come from.
2. What is used to produce them (i.e.: large areas of productive farm land, soil nutrients, water, sunshine, farmers, farm-workers, fertilisers, farm machines, trucks, petrol, market area, restaurant, frozen food section of supermarket,) Learners do not have to create an exhaustive list, as long as they understand that more resources go into a meal than they may realise.
Group Activity

1. Organise the class into groups.
2. Assign each group three types of food.
3. Ensure that each group of learners has a type of food that requires many resources and one that requires few.
4. Learners have to identify the resources used in the production of the different types of food they have been assigned.

For example:
- An orange / orange juice / orange sweets
- Milk/cheese / a ready-made cheese and tomato sandwich
- Water / freshly squeezed juice / a fizzy drink

Class Discussion

1. Learners’ lists are pasted on the wall for all to see.
2. Give each group 3 different sized Footprint Cut-outs (worksheet 4). Explain that the big Footprint will cover food that makes the largest impact on the Earth, the medium Footprint covers food that makes a medium impact and the smallest Footprint will cover food that makes the smallest impact on the Earth.
3. Learners have to match the correct sized Footprints to the food on their lists.

Now that they have discovered the size of their food footprint, ask them to think of any changes that they can make to try and reduce the size of their footprint.
Case Study 2
Woolworths, sustainability & society

More and More Organic Choices – Good for You and Good for the Environment
Woolworths has taken the lead in offering South African consumers more and more choices of certified organic products. We believe that choosing organic products is a commitment to living sustainably now so that we leave a better world for our children.

Organic farming is a good way to farm
Woolworths recognises organic farming as vital in promoting and supporting sustainable agriculture for the benefit of future generations. Organic farming subscribes to the higher principles of building soil fertility, minimising pollution and damage to the environment, working with rather than against natural systems and respecting animal welfare. Organic produce is free from genetic modification and grown without the use of synthetic fertilisers or pesticides according to the globally accepted definition of organic. Organic growers make use of approved natural repellents and compost, as well as techniques such as companion planting and crop rotation.

Organic food is good food you can trust
Woolworths offers consumers a year-round supply of organic foods including fresh produce, nuts, chocolates, milk, eggs, cheese, wines and juices as well as organic groceries like pasta and peanut butter. They are all certified organic by independent auditors. Organic produce, of course, is free of growth hormones, synthetic pesticides, herbicides and antibiotics. When it comes to processed organic food, if it says organic on the label, it means 95% of the ingredients of agricultural origin (e.g. strawberries, wheat, olives, etc.) are certified organic. While certain approved non-organic ingredients (such as salt) may be added, no synthetic flavours or colours may be used.

Woolworths fashion goes green
In addition to our offerings of high quality organic food, Woolworths is also committed to providing consumers with a growing range of clothing and homeware items made from organic cotton.

Certified Organic in South Africa
We make it easy for consumers to find certified organic products on our shelves by clearly labelling our certified organic products with our distinctive organic logo. We adhere to International Organic Standards and buy from organic farmers who are annually audited and certified by independent bodies because they meet globally accepted organic requirements. The certification number or logo of organic certifying authorities such as Ecocert or Afrisco also appears on the label of an organic product as the consumer’s guarantee that when we say organic, we mean organic.

Our commitment
As part of our sustainability initiative, the Woolworths Good business journey, we will continue to increase our offering of organic food and textiles.
Lesson Format

Explain what sustainability is in context of the economy. Include a definition of economics. This is followed by a group activity, which focuses on the quality of life in the community.

Educator Notes

Sustainability relates to the ability of the economic, social and environmental systems of a community to provide a healthy, productive and meaningful life for all its present and future community residents.

Economics relates to how we manage our individual households and our collective community ‘households’. People need food, water, energy, a place to live and clothes to wear to survive. These material goods are all based on resources from the natural environment in which we live. For many people however, ‘economy’ is a complex topic related to money.

4.1 the quality of life in the community

Class Discussion

1. Divide the learners into groups.
2. Each group must choose a team leader, who reports back.
3. Pose the following questions:
   a. Are people in your community working more and earning less or are most people well off?
   b. Is there less or more poverty and homeless people in your community?
   c. Is it harder or easier for people to find homes they can afford?
   d. Do you like living in your community? Explain.
   e. Where would you like to live one day?
   f. Do you think that you will be able to afford it?
   g. What kind of job do you think you would need to have to live in that community?
4. Write the answers of the learners on the board and discuss their answers.

4.2. sustainable agriculture

Lesson Format

Explain to the learners what Sustainable agriculture is.
**Case Study 3**

**Woolworths, sustainability & the economy**

**The Madumbi Farmers – Woolworths organic suppliers break barriers to trade**

One of the striking advantages of developing organic food markets is the opportunity that opens up for previously-disadvantaged South African farmers to enter and participate in the economic mainstream. Traditional subsistence farmers grow crops organically. They naturally comply with the criteria for farming without the use of artificial pesticides, herbicides and fertilisers.

**Access to a premium market**

A collaboration between the Ezemvelo Farmers Organisation, Dr James Hartzell of Assegai Organics and Dr Albert Modi of the University of Kwa-Zulu Natal has resulted in more than 200 farmers supplying Woolworths with organic madumbis, sweet potatoes, baby potatoes and green beans.

**From subsistence to agribusiness**

The Ezemvelo farmers live on smallholdings scattered over the green hills and valleys near Umbumbulu, on Kwa-Zulu Natal’s south coast. While the community is not geographically remote, the people have been isolated from first-world life. They have had no access to running water or electricity. Parents have battled to pay even nominal fees for their children to attend school. The community has been eating what they can grow, cooked over fires in smoky huts. Until now, the farmers have had no idea that their land could be an economic asset and that growing more than they eat could tap them into the economy.

**First certified organic group of subsistence farmers**

The project started in 2001 with 28 original members, and quickly expanded. Dr Hartzell and Dr Modi worked closely with the farmers to improve farming methods and undertake crop trials. They assisted with putting in place the processes required for the farmers to qualify for organic certification and established the channel for them to supply their produce to the developed market. The Kwa-Zulu Natal Department of Economic Development and Tourism provided funding for infrastructure such as fencing. AFRISCO, an international organic certification agency, agreed to waive the certification fee for the first year. The Ezemvelo Farmers Organisation became their first certified group of subsistence farmers in South Africa.

**Brighter better future**

The fact that these farmers are growing produce for Woolworths, renowned for its high standards of food quality and food safety is a motivating factor amongst the members of the Ezemvelo Farmers Organisation. They take a special pride in the quality they produce and make the necessary efforts to maintain the processes and standards. They see a bright future ahead of them and they are working hard towards this. The fact that organic produce from the Ezemvelo Farming Organisation is on Woolworths shelves also adds another dimension to organic consumerism where choosing to buy organic products is not just good for you and better for the earth, but it can also make a positive difference in your society.

**Educator Notes**

A good example of sustainability and the economy is sustainable agriculture. Sustainable agriculture integrates **environmental stewardship, farm profitability** and **prosperous farming communities**. It refers to the ability of a farm to produce an indefinite supply of food, without causing irreversible damage to the ecosystem. Crops are dependent on air, sunlight, soil nutrients and water. When crops are grown and harvested by farmers, they remove some of the nutrients from the soil. If the soil is not replenished, the land will be unusable, as it will suffer from nutrient depletion. Sustainable agriculture depends on replenishing the soil, while minimizing the use of non-renewable resources, such as natural gas or mineral ores.
Lesson Format

Now that they know about sustainability, they can apply all their knowledge and design their own BOARD GAME (refer to opposite page).

Educator Preparation

• You will need scissors, large sheets of paper or cardboard on which to make the board game;
• counters and dice – (try to re-use waste for counters e.g. different coloured plastic bottle caps);
• Ideas about living sustainably (see “Ideas for Sustainability Board Game”).

Ask the learners how they could live a more sustainable life at home and at school. Here are some ideas on how to encourage them:
• keeping healthy e.g. not smoking, eating a balanced diet;
• respecting others e.g. being considerate to others, looking after other people’s things;
• respecting the environment e.g. saving water, electricity and paper, recycling.

Ideas for Sustainability Board Game

1. Planted a tree – move forward 3 spaces
2. Picked up litter at school – move forward 2 spaces
3. Boiled full kettle for 1 cup of tea – go back 2 spaces
4. Recycled cold-drink can – move forward 3 spaces
5. Said no to cigarettes – move forward 3 spaces
6. Watched TV all afternoon – go back 2 spaces
7. Helped an elderly woman across the street – move forward 3 spaces
8. Left the computer on all night – go back 1 space
9. Threw old toys in the bin – go back 3 spaces
10. Fitted energy-saving light bulbs – move forward 3 spaces

Group Activity

1. Write some of the ideas on the board
2. Ask learners to work in pairs/groups depending on the class size.
3. Each pair/group must think of 15 actions that will result in players moving forward or back on a board game. E.g: ‘Did not turn tap off properly - go back 2 spaces’ or ‘Fitted energy-saving light bulbs – move forward 3 spaces’. The text needs to be brief to fit the particular squares on the board game. (Refer “Ideas for Sustainability Board Game”)
4. Ask learners to create a simple board game track of about 50 squares on cardboard or paper. (Try to use recycled paper or cardboard as much as possible.) The board game should include a “Start” square and an “End” square.
5. Choose 40 to 50 actions that the learners have come up with.
6. Prepare the 50 actions on squares and paste them on the board.
Follow-up Activity

1. On completion, play the game in groups ensuring that everyone has a chance to play. (You might need a have a “games” lesson for a couple of days to ensure that everyone has a chance to play.

2. The game:
   a. The game is played by each learner throwing the dice in turn, moving onto the board according to the number on the dice.
   b. Players read the square they land on and then move either forward or back according to the instructions.
   c. The next learner then throws the dice and moves accordingly, and so on, until the learners in turn reach the “End” square.
worksheet 1  
the effects of living unsustainably

The following graph represents the population and natural vegetation in a specific area. Answer the following questions:

1. What is the population in 1652?
2. What is the difference in population between 1752 and 1852?
3. In which year is the natural vegetation the highest?
4. In which year is the natural vegetation the lowest?
5. Is the vegetation increasing or decreasing over the years?
6. Is the population increasing or decreasing over the years?
7. How is the increase in population affecting the natural vegetation?
8. What do you notice about the natural vegetation and the population in the year 1852?
9. What happens to the natural vegetation after 1852?
10. Why do you think there has been a decrease in the natural vegetation over the years?
worksheet 2
investigating water shortage

Experiment:

You will need the following for your experiment:

• 3 kidney beans
• cotton wool
• a plastic dish
• water

Step 1
• Bring your bath water to school.

Step 2
• Clearly mark the three dishes Bean A, B and C respectively.
• Bean A: Soak some cotton wool in water. Make sure that the cotton wool is well soaked.
  Wrap the bean inside and place it in the dish.
• Bean B: Take some cotton wool and lightly sprinkle it with water. Be sure NOT to soak the cotton wool.
  Wrap the bean inside and place it in the dish.
• Bean C: Take some dry cotton wool and place the bean inside. Place in the dish.

Step 3
• Monitor the three beans closely for 2 weeks and record your observations.

Step 4
• Remember to keep Bean A’s cotton wool moist at all times.
• Check on the moisture level of cotton wool of Bean B every 3 days.
• Do not add any water to Bean C at all during the two week period.

Step 5
• Ensure that all beans have sufficient sunlight during the 2 week period.

Step 6
• Compare observations of Bean A, B and C in a table.
• Findings can be presented on a graph e.g. growth.
• Make a drawing of what you observed in each dish.
worksheet 3
ecological footprint quiz questions

Answer the following questions by choosing the most sustainable option e.g. 1a.

1. **What kind of breakfast do you have in the mornings?**
   - a. Porridge and fruit
   - b. Bacon and eggs or café breakfast

2. **How do you get to school and back?**
   - a. With Mom or Dad driving and you as the only passenger.
   - b. Walking, cycling or lift clubs.

3. **What type of food do you generally eat?**
   - a. Food that is produced in your own community or in your own garden.
   - b. Food that has travelled many thousands of kilometres, from the farms and factories where it was produced, to the shops in your neighbourhood.

4. If you have one sweet wrapper in your hand, do you…
   - a. throw it on the ground?
   - b. throw it in a dustbin?

5. **What happens to your litter at home? Do you ...**
   - a. throw your litter in a dustbin?
   - b. recycle and re-use your litter?

6. **How do we save energy in our classroom? By ...**
   - a. switching the lights off when we leave.
   - b. installing energy-saving light bulbs and switching the lights off when we leave.

7. **Describe the packed lunch you bring to school?**
   - a. Mom or Dad made and packed in a container I can re-use every day.
   - b. In packaging, which I will have to throw away once I have eaten my lunch.

8. **What type of electricity is provided at school?**
   - a. Our school can only pay for coal-based electricity.
   - b. Our school can get power by installing solar panels on the roofs.

9. **Which meal would you prefer?**
   - a. A salad made from the vegetables you’ve grown at home.
   - b. takeaway meal from a fast food shop.

10. **If you are not watching TV, you...**
    - a. switch the TV to ‘standby’.
    - b. switch off the TV and switch off the plug.
worksheet 3
ecological footprint quiz answers

1. Answer: a
Porridge (especially organic cereal) and fruit are healthy foods produced in environmentally friendly ways - good for you and good for the environment!

2. Answer: b
Belonging to a lift club saves petrol, which means less carbon dioxide in the air – and that’s good for the environment. Walking or cycling is the best option - no petrol while keeping fit!

3. Answer: a
It is better to eat more food that is produced as near as possible to your home, because if food does not need to be transported long distances, then there’s less carbon dioxide in the air – and that’s good for the environment!

4. Answer: b
It is always better to throw your litter in a dustbin than on the ground, as litter pollutes your environment.

5. Answer: b
It is always best to recycle and re-use your litter rather than to throw it in a dustbin. The litter we throw away still has to go to a rubbish dump called a landfill, which results in land that people and other species cannot use.

6. Answer: b
By installing energy-saving light bulbs, you can save energy when the lights are on and when you switch them off when you leave!

7. Answer: a
Eating food prepared at home and using the same re-usable containers all week is much better than eating packaged food bought at a shop; the packaging results in lots of waste.

8. Answer: b
South Africa gets plenty of sunshine! – your school can save money and reduce pollution by getting power for lighting, heating, computers and other appliances by installing solar panels on roofs.

9. Answer: a
Food that you have grown organically at home is free and healthy food. On the other hand, fast foods are unhealthy and more expensive – they also use a lot of resources to produce and generate a lot of waste.

10. Answer: b
Appliances that go to ‘standby’ mode such as TVs and computers are still using electricity, so make sure you switch them off at the plugs when you are not using them. You will save money and energy and help to prevent unnecessary pollution.
worksheet 4

foot print cut outs
## Assessments

**Assessment 1:**
**Interpreting graphs (worksheet 1)**

<table>
<thead>
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<th>Learners were able to…</th>
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<tbody>
<tr>
<td>Read the keys</td>
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<tr>
<td>Answer simple questions</td>
<td></td>
<td></td>
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<tr>
<td>Interpret information</td>
<td></td>
<td></td>
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<tr>
<td>Draw comparisons</td>
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<td>Draw conclusions</td>
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**Assessment 2:**
**Evaluating food chains (1.6)**

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<th>Good (3)</th>
<th>Ave (2)</th>
<th>Poor (1)</th>
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<tbody>
<tr>
<td>Completion of task</td>
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<tr>
<td>Flow of diagram</td>
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<td></td>
</tr>
<tr>
<td>Evidence of good knowledge</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Neatness</td>
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**Assessment 3: (worksheet 2)**
**Scientific investigation through conducting an experiment and communicating observations**

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<th>I was able to…</th>
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<th>NO</th>
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<td>Follow instructions</td>
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<tr>
<td>Identify the difference between the 3 dishes</td>
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<td></td>
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<tr>
<td>Explain in my own words what I've observed</td>
<td></td>
<td></td>
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<tr>
<td>Diligently record my findings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keep observing for 2 weeks</td>
<td></td>
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</table>
Assessment 4:
**Food and you (3.3)**

How well did your group do in…

- Identifying natural resources used in the production of the different food
  - Good (3)
  - Average (2)
  - Poor (1)

- Comparing the use of technology in the production of different food
  - Good (3)
  - Average (2)
  - Poor (1)

- Understanding personal impact on natural resources
  - Good (3)
  - Average (2)
  - Poor (1)

- Making sustainable food choices
  - Good (3)
  - Average (2)
  - Poor (1)

- Working together as a team
  - Good (3)
  - Average (2)
  - Poor (1)

Assessment 5:
**Evaluating the board game**

- Layout of Game board
  - Good (3)
  - Average (2)
  - Poor (1)

- Instructions of game (clear/vague)
  - Good (3)
  - Average (2)
  - Poor (1)

- Balance between forward/backward movements
  - Good (3)
  - Average (2)
  - Poor (1)

- Social awareness
  - Good (3)
  - Average (2)
  - Poor (1)

- Creativity
  - Good (3)
  - Average (2)
  - Poor (1)
**Contact Details**

### Woolworths Making the Difference Programme Regional Relationship Managers

<table>
<thead>
<tr>
<th>Region</th>
<th>Name</th>
<th>E-mail Address</th>
<th>Telephone No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Cape</td>
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### Woolworths Making the Difference Programme Regional Coordinators

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<tr>
<th>Regional Offices</th>
<th>Regional Coordinator</th>
<th>E-mail Address</th>
<th>Telephone No.</th>
<th>Fax. No.</th>
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<tr>
<td>Western Cape</td>
<td>Vusani Mlilo</td>
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</table>

### Woolworths Making the Difference Programme National Enquiries

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### MySchool Fundraising Initiative

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