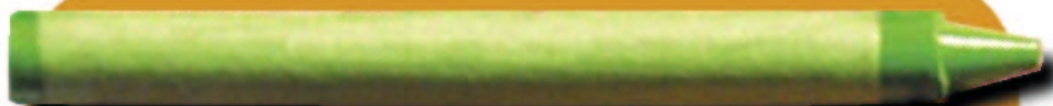




**PREHISTORIC PHASE**



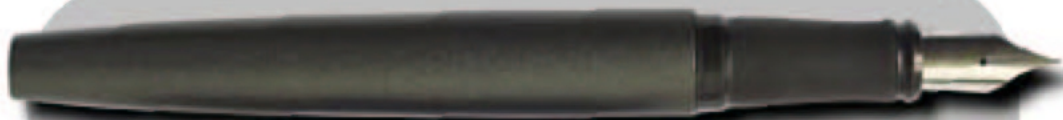
**FOUNDATION PHASE**



**INTERMEDIATE PHASE**



**SENIOR PHASE**



**FET PHASE**

# **TEACHER'S**

**RESOURCE PACK**



maropeng™



# SENIOR PHASE

• <b>Social Sciences</b>	<b>2</b>
• <b>Mathematics</b>	<b>9</b>
• <b>Life Orientation</b>	<b>14</b>
• <b>Natural Sciences</b>	<b>21</b>
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# SENIOR PHASE

## Social Sciences



Learning Area: **Social Sciences**

Theme: **World Heritage Sites and Sustainability**

## Grade 8

Pages 3 - 8

### Settlement and land use

#### Urban settlements

- Land use within urban settlements – including the central business district, zones for light and heavy industry, residential areas (high-, middle- and low-income), shopping centres, services and recreation

#### Rural settlements

- Types of rural settlement – including farming, mining, forestry, fishing

#### Land use on aerial photographs and large-scale maps

- What aerial photographs look like (oblique and vertical)

#### Information from aerial photos – natural and constructed features

- Identifying land uses in urban settlements (aerial photographs and large-scale maps \*)

#### Investigation of a settlement (project)

- An independent study of a settlement known to the individual learner
- Describe the settlement and the different types of land use.
- Identify specific features or landmarks (natural and/or human-made).
- Suggest reasons for the location of this settlement
- Discuss decline and/or growth of population of the settlement and suggest reasons.

### Background knowledge

Africa is the birthplace of humankind. This is where our collective umbilical cord lies buried. Hominids – the ancestors of modern humans – first emerged about 7-million years ago, in Africa. Many significant fossil finds have been made in the **Cradle of Humankind World Heritage Site**, including the famous fossils “Mrs Ples” and “Little Foot”. The first stone tools were made and used in Africa, at least 2.6-million years ago. Let us go and visit.





### Why is the Cradle of Humankind a World Heritage Site?

The Cradle of Humankind is one of the most prolific hominid fossil areas in the world. It was declared a World Heritage Site in 1999 because of the contribution hominid fossils found here have made to our understanding of the history of humankind.

### World Heritage Sites

World Heritage Sites are declared by the United Nations Educational, Scientific and Cultural Organisation (Unesco) to recognise and preserve outstanding places of cultural and natural heritage. World Heritage Sites include places like the Great Barrier Reef in Australia, the Pyramids in Egypt, the Great Wall of China and the Taj Mahal in India.

The Cradle of Humankind was declared a World Heritage Site in 1999 specifically because of its contribution to our knowledge about the birth of humankind.

### Additional Info:

The Unesco Committee inscribed this property on the World Heritage List on the basis of criteria (iii) and (vi):

Criteria (iii) and (vi): The Sterkfontein area contains an exceptionally large and scientifically significant group of sites which throw light on the earliest ancestors of humankind. They constitute a vast reserve of scientific information, the potential of which is enormous.

iii. to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;

vi. to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria).



Can you find any evidence to prove that it is a World Heritage Site?





Look at the banner. What does it tell us?



In previous grades you have learned about renewable and non-renewable sources of energy.



Identify the non-renewable and renewable sources of energy illustrated on the banner.

Non-renewable	Renewable
Oil (petroleum)	Solar
Natural gas	Wind
Coal	Hydro
Uranium (Nuclear)	Biomass

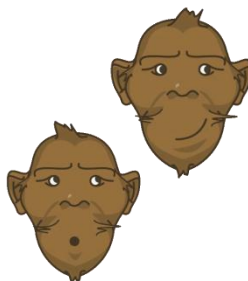


Why do we need to look after our energy sources?

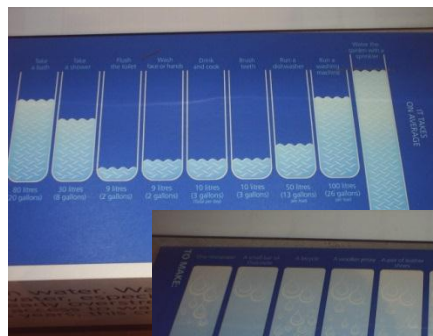
What will happen if we do not look after them?

Learners must go to the **Sustainability Wall** in the exhibition area.

What areas give us ideas on sustainability?



What do these graphs tell us? Is it a problem? What is the possible solution(s)?



Learning Area: **Social Sciences****Introduction****Human settlement in South Africa**

Humans have been inhabiting South Africa for hundreds of thousands of years. In fact, the Cradle of Humankind, situated near Pretoria in Gauteng, is where remains of our early human ancestors who lived over 3-million years ago have been found.



Go and visit the Sterkfontein Caves, if you can.

**Bring the family along and enjoy a guided adventure!**

You'll start at the newly opened 260 m<sup>2</sup> exhibition. This scientific exhibition consists of four large showcases which include life-like models of hominids, a sabre-tooth cat, a reconstruction of a mined cave vs. a pristine cave, cave formations and geologies, early life forms, fossils in general (mammals and hominids), specific finds (like Mrs. Ples, Taung Child, Little Foot), details of fossilization, palaeobotany and landscapes...

From there you will make your way up to the limekilns, past the sundial and then underground into the depths of the caves. Beneath the dust of millions of years you'll see for yourself the resting place of some of the most important fossils ever found and you'll hear the magnitude of their significance to the world! After proceeding over the walkways to view the excavation which was Mrs. Ples's final resting place, the trip will continue past the fossil preparation where scientists continue to investigate the clues to our past. Finally you'll be able to enjoy a meal in the family restaurant – one you won't have to hunt yourself!

Reference: <http://www.discover-yourself.co.za>

**1. Underline all the words that tell you more about humankind. This will help you when you visit the caves to ask questions and to search for information. If you live too far from the caves, search for information on the internet or write to Maropeng a'Afrika for additional information.**

**History of Sterkfontein Caves**

Sterkfontein Caves are most famous for two world renowned hominid finds, namely Mrs Ples in 1947 and Little Foot in 1997. Since excavations at the site first began, hundreds of hominid fossils as well as stone tools have been found at Sterkfontein. The excavation of Little Foot and other fossils is an ongoing process at this still-active fossil dig.

The Cradle of Humankind World Heritage Site consists of more than 40 different fossil sites, 13 of which have been excavated. These include Bolt's Farm, where the remains of three sabre-tooth cats have been found in a pit that trapped animals; Swartkrans, site of the earliest-known deliberate use of fire, around 1.3-million years ago; Haasgat, where the fossils of early forest-dwelling monkeys, around 1.3-million years old, were found; and Gondolin, where 90 000 fossil specimens have been found since 1979.

Reference: <http://www.discover-yourself.co.za>

**If you have any further questions, feel free to**

**e-mail:** [info@discover-yourself.co.za](mailto:info@discover-yourself.co.za)

**2. Why would you visit the Sterkfontein caves?**



Learning Area: **Social Sciences**

**Introduction**

**Sterkfontein Caves**

**Look after the caves**

A visit to the Sterkfontein Caves is a fun excursion. However, it is a South African Heritage Site and is part of the World Heritage Site, so we must do all we can to protect the Sterkfontein Caves and surroundings.

It is up to you to help us preserve our heritage for future generations. When you visit, please remember:



Parents are to keep children under their care and control at all times.

A tour group can be no larger than 30 at a time and a parent/s must accompany their children.



There will be no destruction by visitors of the fauna and flora in the World Heritage Site.

All rubbish, paper and tins are to be placed in the waste bins provided.



There will be no eating or drinking whilst on the tour.

There will be no sitting on tables and plant life.



Writing on the cave or toilet walls is strictly prohibited and any individual found doing so will be prosecuted.

**Other famous caves in South Africa**

**The Cango Caves**

The Cango Caves near Oudtshoorn are the best-known South African limestone caves. The main attractions are the imposing sculptures formed by stalactites and stalagmites. The museum on site features plants, animals and rock formations from the caves.

**The Sudwala Caves**

The Sudwala Caves in Mpumalanga, near Waterval Boven, are a network of large interleading chambers, one of which is used for musical recordings because of the incredible acoustics in the chamber. Within the caves, the temperature remains a constant 17°C all year round. Outside the caves is a world-famous Dinosaur Park. The first of Sudwala's model dinosaurs was commissioned to illustrate the age of the caves (100-million years). Now there are many dinosaur models representing species from around the world. Life-sized, they inhabit the hillside to the side of the caves.

**The Echo Caves**

The Echo Caves on the road from Ohrigstad to Tzaneen are the least well known of the limestone caves. The caves are so called because the local people used one of the flow-stones as a drum to warn of any approaching Swazi. As these caves extend for some 40 km (24 miles), the sound travelled for surprisingly long distances and the people could take refuge in the caves. From an archaeological point of view, the caves are fascinating as finds here corroborate the legend that, long ago, strangers in long white robes came to look for gold and to barter with the inhabitants.

3. Compare the three caves with the Sterkfontein Caves.

4. What cave is closest to you?



Learning Area: **Social Sciences****Grades 8**

Can you remember South Africa's World Heritage Sites?

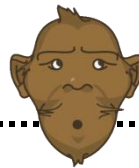
Read below to refresh your memory.

### World Heritage Sites

A World Heritage Site is declared by the United Nations Educational, Scientific and Cultural Organisation (Unesco). For a place to be included on the World Heritage List it has to meet certain requirements.

The first seven sites to be declared as World Heritage Sites in South Africa were:

1. The Greater St. Lucia Wetlands Park
2. The uKhahlamba Drakensberg Park
3. Robben Island
4. The fossil hominid sites of Sterkfontein, Swartkrans, Kromdraai, and environs. (The Makapans Valley and Taung were also added to this World Heritage Site in 2005.)
5. The Mapungubwe Cultural Landscape
6. The Cape Floral Kingdom
7. The Vredefort Dome



**What is the latest World Heritage Site declared in South Africa?**

There are two types of World Heritage Sites. The first represents cultural, and the second natural heritage.

### Natural sites

Natural World Heritage Sites show major stages in the Earth's history. This can be in fossils, rocks, and how the land and natural features like mountains have been influenced.

If an area contains rare natural formations, like unique rock shapes, or is very beautiful, or has habitats and species of animals and plants that can only exist there, it becomes important to protect it.

Some special places fall into both cultural and natural heritage sites.

### Cultural sites

Cultural heritage sites show a masterpiece of human creativity or an important exchange of human values over a long period of time. This exchange must be seen in architecture or technology, the planning of the town or city and the design of the landscape. It has to show evidence of a tradition or civilisation that has disappeared or is still alive.

A place where humans settled and used the land in a way that represents their culture can also be a cultural heritage site, especially if the area is affected by change that cannot be reversed.

### Answer the following questions.

- At which World Heritage Site in South Africa will you find hundreds of rock-art paintings?
- What is a natural site? Why do we need to look after natural sites?
- What is a cultural site? Why do we need to look after cultural sites?
- Where will we find rock art painting – at a natural or cultural site? Why?

# SENIOR PHASE

## Mathematics



Learning Area: **Mathematics**

Theme: **Four Elements**

**Grade 8** Pages 10 - 13

**Space and shape (Geometry)**

**Classifying 3D objects**

- Describe, name and compare the 5 Platonic solids in terms of the shape and number of faces, the number of vertices and the number of edges

Building 3D models

**Grade 9** Pages 10 - 13

**Space and shape (Geometry)**

**Classifying 3D objects**

- Revise properties and definitions of the 5 Platonic solids in terms of the shape and number of faces, the number of vertices and the number of edges.

**Background knowledge**

Our ancestors were able to use and control fire at least 1-million years ago in the Cradle of Humankind. Let us go to the four elements and explore...

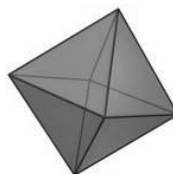
**Grades 8-9**

Pre-Activity: Do the worksheet with learners before coming to Maropeng. Learners will then easily make the connection between the history of the Platonic solids and how in the past they used to symbolise the four elements.

Earth:



Wind:



Fire:



Water:



Learning Area: **Mathematics**

Theme: **Four Elements**

In the lobby at Maropeng Visitors' Centre, there are four large columns which symbolise the four elements which are essential to support life on Earth: the air that we breathe; the fire that warms us; the earth that sustains us; the water for life. Ask the learners:



Can you remember which Platonic solid represents each element and why?

(It is advisable that the teacher brings a set of these Platonic solids made by learners.)

Give learners some background knowledge on each of the elements:

**[Fire]** The global rate of ice melt has more than doubled since 1988 and could raise sea levels 27cm by 2100. – Worldwatch, 2003

We have used fire to power vehicles and industries, but the resulting emissions now contribute to the global warming that threatens our resources. (Just for fun: Lift the solid representing fire and show how the shape of the flame fits into the solid)

**[Earth]** Poor farming practice has contributed to top-soil erosion, making some earth unproductive for future generations.

**[Earth]** Since 1700, nearly 20% of the world's forests and woodlands have disappeared. – National Institute of Public Health and the Environment, Netherlands & Centre for Sustainability and the Global Environment, University of Wisconsin-Madison, USA, 2001

The last Platonic solid represents the universe. (Just for fun: Ask learners what will happen if you change the base of the shape, so that the base looks like the solid representing the wind. Yes it will be unstable. This is what happens when we destroy the earth.)

**[Air]** We have polluted the air with toxins that destroy plants and animal habitats, and even make us sick.

Bird extinctions are running at 50 times the natural rate due to habitat loss and other consequences of human activity. – Worldwatch, 2003

(Just for fun: Turn the shape. Look how the air moves. Through the movement we spread air pollution.)

**[Water]** The world's rich waste fresh clean water while a billion people suffer because they don't have any of it.

Let us get onto our boats and go and learn more about the universe.

Do these activities before visiting Maropeng.

Learning Area: **Mathematics**

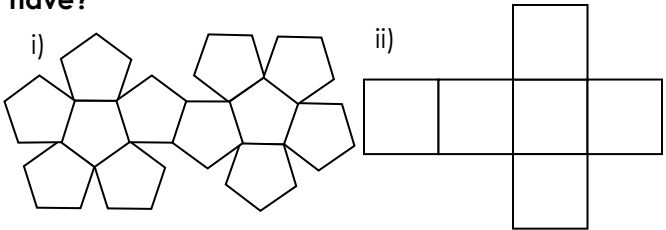
**Grades 8-9**

**Greece:** The five Platonic solids

The five "Platonic solids", three-dimensional shapes that have equal sides and equal angles, were thought to represent the four elements, earth, air, water and fire, and the fifth the universe.

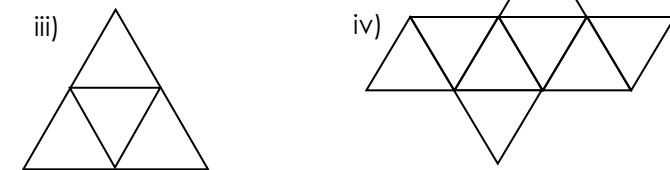
**a. Enlarge these nets and make the five 'Platonic solids'.**

**b. How many faces, vertices and edges does each have?**



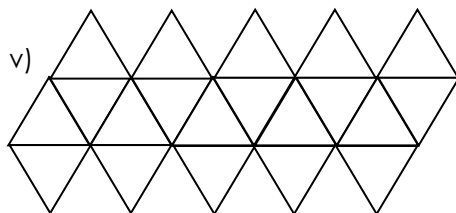
**Dodecahedron**

**Cube**



**Tetrahedron**

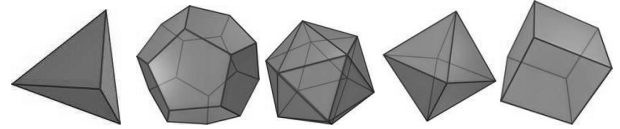
**Octahedron**



**Icosahedron**

**c. Describe the similarities and differences between these 3-D objects.**

**d. Match each solid with a net on the left.**



**For fun:** Make the frames pictured above from toothpicks and jelly tots. In technology, you may have learned about frames. When you've made a frame, cover it with a shell. When you fill it, it's called a solid.

**Answer the following questions:**

i) Which of the 3-D objects has the smallest volume?

ii) Which of the 3-D objects has the largest volume?

*These two 3-D objects represent the properties of dryness and wetness, so they represent FIRE and WATER.*

iii) Which of the 3-D objects stands the most firmly?

*This 3-D object represents the stable EARTH.*

iv) Which 3-D object will rotate freely when held by two opposite vertices?

*This 3-D object represents the moving AIR.*

v) This 3-D object corresponds to the UNIVERSE because the zodiac has 12 signs, which represent constellations of stars. Name the 3-D object. (Go back to your Intermediate Phase Geography Modules to look at these constellations.)

Answers: (i) Tetrahedron, (ii) Icosahedron, (iii) Cube, (iv) Octahedron and (v) Dodecahedron

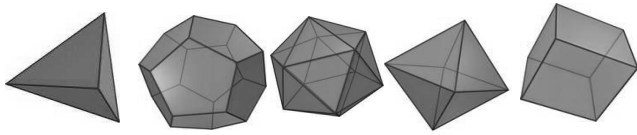
1. Not achieved	2. Elementary achievement	3. Moderate achievement	4. Adequate achievement	5. Substantial achievement	6. Meritorious achievement	7. Outstanding achievement
0-29	30-39	40-49	50-59	60-69	70-79	80-100
Cannot describe the similarities and differences between polyhedra.	Needs basic understanding of how to describe an object, faces, vertices etc.	Needs more support in describing the similarities and differences between polyhedra.	Describes the similarities and differences between polyhedra.	Finds, describes and compares other polyhedra.	Designs own two polyhedra and compares them.	Evaluates friend's polyhedra.



Do these activities after visiting Maropeng.

Learning Area: **Mathematics**

**Grade 8**



**Q: Name the five Platonic solids.**

**Q: Why did each of them represent the four elements and the universe in the past?**

1. Not achieved	2. Elementary achievement	3. Moderate achievement	4. Adequate achievement	5. Substantial achievement	6. Meritorious achievement	7. Outstanding achievement
0-29	30-39	40-49	50-59	60-69	70-79	80-100
Cannot recognise five Platonic solids.	Needs more support on understanding the five Platonic solids.	Names a few Platonic solids but gets confused between some of them.	Recognises, visualises and names geometric figures and solids in natural and cultural forms and geometric settings, including: <ul style="list-style-type: none"> <li>the Platonic solids (tetrahedron, cube, octahedron, dodecahedron, icosahedron).</li> </ul>	Draws a net for each Platonic solid.	Draws the Platonic solids through visualisation.	Investigates what will happen if you remove one face and then two faces from each solid. What solid will it form?

## Senior Phase: Learner Activity and/or Assessment Task

Learning Area: **Mathematics**

**Grade 9**

**e. Each solid represents either an element or the universe. Take the solids and make them, but make the shapes that make up the solids irregular. Do the shapes still represent the five solids? Why or why not? (Think of things you learned at Maropeng, such as that destroying the Earth is represented by a cube that falls over. Remember, in this activity you can be very creative.)**

1. Not achieved	2. Elementary achievement	3. Moderate achievement	4. Adequate achievement	5. Substantial achievement	6. Meritorious achievement	7. Outstanding achievement
0-29	30-39	40-49	50-59	60-69	70-79	80-100
Does not know the difference between regular and irregular shapes.	Knows what regular shapes are and how they form regular polyhedrals. Needs more support on irregular polyhedra.	With support, recognises and visualises regular and irregular polyhedra.	Recognises, visualises and names geometric figures and solids in natural and cultural forms and geometric settings, including: <ul style="list-style-type: none"> <li>regular and irregular polygons and polyhedra</li> </ul>	Investigates what will happen if you make the shape irregular that forms the polyhedra.	Draws nets for irregular polyhedrals.	Makes irregular polyhedrals,

# SENIOR PHASE

## Life Orientation



Learning Area: **Life Orientation**Theme: **The greatest wealth is health. – Virgil****Grade 7**

Pages 15-18

**Health, social and environmental responsibility**

- Community and individual projects and strategies to prevent and deal with environmental health problems
- Problem-solving skills: an action plan to address an environmental health problem and formulate environmentally sound
- choices and actions
- Common diseases: tuberculosis, diabetes, epilepsy, obesity, anorexia, HIV and AIDS
- Common diseases: tuberculosis, diabetes, epilepsy, obesity, anorexia, HIV and AIDS
- Causes of diseases: social, economic and environmental factors including use of alcohol and tobacco, poor eating habits and physical inactivity

**Constitutional rights and responsibilities**

- Application of responsibilities in relation to human rights

**Grade 8**

Pages 15, 16, 17 and 19

**Health, social and environmental responsibility**

- Application of laws and policies to protect the environmental health: address an environmental issue
- Develop and implement an environmental health programme
- Informed, responsible decision-making about health and safety: HIV and AIDS
- Prevention and safety issues relating to HIV and AIDS
- Caring for people living with HIV and AIDS

**Grade 9**

Pages 15, 16, 17 and 20

**Health, social and environmental responsibility**

- Different types of volunteer organisations: contributions of community-based and non-profitable organisations to social and environmental health and sustainable development
- Different types of volunteer activities: helping those less privileged; assisting those affected and infected by HIV and AIDS and other terminal illnesses

**Constitutional rights and responsibilities**

- Issues relating to citizens' rights and responsibilities

**World of work**

- Knowledge of the world of work: rights, responsibilities and opportunities in the workplace

**Development of the self in society**

- Unwanted results of unhealthy sexual behaviour: teenage pregnancy, sexually transmitted infections (STIs), HIV and AIDS, low self-image and emotional scars



Ask learners to walk around the display section and find words that start with the letters that make up the word "health". Give learners the following examples coming from Maropeng. Is the statement negative or positive? Why do you say so? What role do humans play in the environment?

**H** = Hominids are the only animals able to create, control and use fire. The development of the ability to do this was an important step in our evolution.

However, our ability to create and control fire has also led to complex problems in modern society, including problems of environmental health.

**E** = "Let every individual and institution now think and act as a responsible trustee of Earth, seeking choices in ecology, economics and ethics that will provide a sustainable future, eliminate pollution, poverty and violence, awaken the wonder of life and foster peaceful progress in the human adventure."

**A** = But over the last 50 years, humans have pumped billions of tonnes of carbon dioxide into the atmosphere by burning fossil fuels. We use fossil fuels to run engines in our cars and in our factories. With this increase of carbon in our skies, the atmosphere has warmed further than it naturally should.

**L** = Today, the use of CFCs has been phased out in most countries and CFC levels in the atmosphere have levelled off and may even begin to drop soon.

**T** = Thus, bioenergy is considered environmentally friendly. We consider bioenergy products renewable because they can grow back. Trees and grass can grow back quickly.

**H** = Hominids can create and control. So let us look after our environment.

**Where in Maropeng will you find this? Why is it in this Zone? What is this table telling us?**

Rank	Cause	All countries	
		Total deaths (in thousands)	% of total
1.	Ischemic heart disease	7,181	12.6%
2.	Cerebrovascular disease	5,509	9.7
3.	Lower respiratory infections	3,884	6.8
4.	HIV/AIDS	2,777	4.9
5.	Chronic obstructive pulmonary disease	2,748	4.8
6.	Diarrheal diseases	1,798	3.2
7.	Tuberculosis	1,566	2.7
8.	Malaria	1,272	2.2
9.	Cancer of trachea/bronchus/lung	1,243	2.2
10.	Road traffic accidents	1,192	2.1%



Look at the banner. What does the banner tell us? Does it tell us about health? Why or why not?

What will happen if we remove the plant from this banner?

What will happen if we remove the water from the banner?

Learning Area: **Life Orientation**
**Grades 7-9**

## Environmental health In South Africa

What is the environment?

I read that, according to the head of the Environmental Health Unit, Benny Maphaka, "environment" means ...

- land, water and atmosphere;
- micro-organisms, plant and animal life forms;
- any part or combination of (a) and (b) and the interrelationships among and between them;
- the built and artificially structured environment, for whatever purpose or use, including any indoor or outdoor part;
- infrastructure or any component; and
- the physical, chemical, biological, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

**Reference:**

[http://www.joburg.org.za/health/health\\_environment1.stm](http://www.joburg.org.za/health/health_environment1.stm)

What is an Environmental Health Practitioner?

Environmental Health Practitioners have the responsibility to ensure that our environmental health is improved.

What should our aim be?

Our overall aim should be a safe, healthy and sustainable environment for all communities in South Africa.

## How our South African Constitution protects environmental rights

We need to keep up with international human rights provisions regarding the environment. So the Constitution of the Republic of South Africa (Act 108 of 1996) provides for environmental rights. Section 24 states that everyone has the right:

- To an environment that is not harmful to their health or wellbeing.
- To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
  - Prevent pollution and ecological degradation;
  - Promote conservation; and
  - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

## Answer the following questions. Ask an adult to help you.

- What is the Constitution of the Republic of South Africa?
- What does the Constitution tell us about our rights as humans?
- Why do you think we need an environment that is not harmful to our health or wellbeing?
- Can you still remember what sustainable development is? Make use of your Natural Science Modules 1-3. Why is it important?
- What do you think sustainable ecological development is?
- What is conservation? Why is it important?
- What does it mean to use natural resources to promote social development?
- Do you want to stay in a healthy environment? Why or why not?





## Learning Area: Life Orientation

## Grade 7

Sections 25 and 27, Constitution of the Republic of South Africa (Act 108 of 1996) state:

### Property

25. (1) No one may be deprived of property except in terms of law of general application, and no law may permit arbitrary deprivation of property.

### Health care, food, water and social security

27. (1) Everyone has the right to have access to –

- health care services, including reproductive health care;
- sufficient food and water; and
- social security, including, if they are unable to support themselves and their dependants, appropriate social assistance.

### Environmental Health Unit

In order to ensure these socio-economic rights, the Environmental Health Unit in South Africa is entrusted with the following responsibilities, which are set out in the Constitution:

- Air pollution
- Building regulations
- Child-care facilities
- Planning with regard to housing
- Health services
- Storm water management
- Water and sanitation services
- Cleansing
- Abattoirs
- Noise pollution

### Other additional responsibilities are:

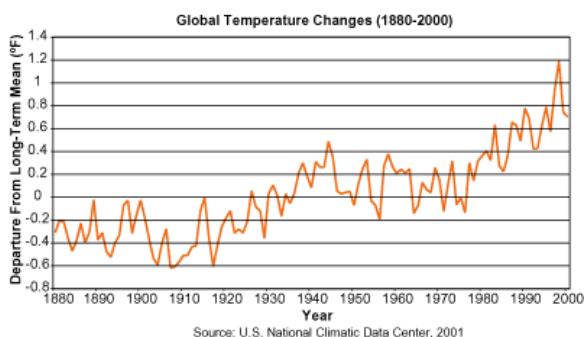
- Animal control and diseases
- Disaster management
- Education
- Environment
- Housing services
- Regional planning and development
- Soil conservation
- Pollution control
- Urban and rural development
- Libraries.



### Answer the following questions:

- According to Sections 25 and 27 of the Constitution, everybody has the right to...?
- The Environmental Health Unit in South Africa has certain responsibilities. How many of these responsibilities are visible in your community?

### Look at the global temperature changes (1880 – 2000)



- Do you think we have a problem in your area? Why?
- What must be done to address this problem?

1. Not achieved	2. Elementary achievement	3. Moderate achievement	4. Adequate achievement	5. Substantial achievement	6. Meritorious achievement	7. Outstanding achievement
0-29	30-39	40-49	50-59	60-69	70-79	80-100
Cannot evaluate actions to address an environmental health problem.	Needs more support understanding what the environment is.	Needs more support in evaluating actions to address an environmental health problem.	Evaluates actions to address an environmental health problem.	Identifies a health problem in his or her community, evaluates it and takes actions.	Distinguishes between various health problems in various areas.	Plans a possible solution(s) for the two health areas.

Learning Area: **Life Orientation****Grade 8****HIV/Aids**

- Over 40-million people are living with HIV worldwide, more than half of them in sub-Saharan Africa.
- Over 20-million people have died of Aids since it was discovered in 1981.
- About 3.1-million people died of Aids in 2004.

SOURCE: WHO



HIV is transmitted through body fluids such as blood, semen, vaginal fluid, breast milk and other fluids containing blood.

**The HI-virus can be transmitted in the following ways, among others:**

- having unprotected vaginal or anal sex with an infected person
- through pregnancy, labour or breastfeeding from an HIV-infected mother to her child
- through infected blood received during a blood transfusion where either the blood has not been screened for the virus, or unsterilised needles have been used
- by sharing needles for intravenous drug use with an infected person

**Source: JournAIDS ([www.journ aids.org](http://www.journ aids.org))**

**Answer the following:**

What are the main reasons that people contract HIV?

Discuss in a group the following factors in relation to the virus:

- education about the virus
- social attitudes

Do you think socio-economic factors affect whether people are likely to contract HIV or not? Why or why not?

Do you think environmental factors affect whether people are likely to contract HIV or not? Why or why not?

1. Not achieved	2. Elementary achievement	3. Moderate achievement	4. Adequate achievement	5. Substantial achievement	6. Meritorious achievement	7. Outstanding achievement
0-29	30-39	40-49	50-59	60-69	70-79	80-100
Names some causes of common diseases.	Summarises common diseases in own community.	Predicts the impact of these diseases on own community.	Critically analyses the causes of common diseases in relation to socio-economic and environmental factors.	Compiles a research report on common diseases.	Describes findings to class.	Evaluates own presentation.

## Learning Area: Life Orientation

## Grade 9

**Health and medicine**

With the development of modern medicine, our global population has skyrocketed. Does the sustainability of our species through good health negatively affect the sustainability of our planet? If we were healthier, would the Earth be more sick?

**Quotes**

The greatest wealth is health. – Virgil

Health is a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity. – World Health Organisation, 1948

**Answer the following:**

- Find information pamphlets on all the aspects mentioned on this page.
- Which of these aspects were the most difficult to find?
- Do the pamphlets tell us that the greatest wealth is health? Why or why not?
- Buy or borrow a health magazine. What is the health magazine telling you? Write down key words. Which section do you like most? Did you learn something new? How will it improve your lifestyle? What will you share with your friends? Why? What will you share with a family member? Why?

**HIV/Aids**

- Over 40-million people are living with HIV worldwide, more than half of them in sub-Saharan Africa.
- Over 20-million people have died of Aids since it was discovered in 1981
- About 3.1-million people died of Aids in 2004

**Tuberculosis**

- About 2-billion people, approximately a third of the world's population, carry the bacteria that cause TB, but only a fraction will ever develop active TB.
- About 20-million people have active TB around the world.
- About 2-million people die of tuberculosis every year, even though it is a curable disease.

**Malaria**

- More than 40% of the world's population is at risk of acquiring malaria, mostly those in the poorest countries.
- Between 300-million and 500-million people become acutely ill with malaria every year.
- Over one million people die of malaria every year.
- Over 80% of malaria deaths occur in sub-Saharan Africa

(Source: WHO)

1. Not achieved	2. Elementary achievement	3. Moderate achievement	4. Adequate achievement	5. Substantial achievement	6. Meritorious achievement	7. Outstanding achievement
0-29	30-39	40-49	50-59	60-69	70-79	80-100
Names places where resources on health information can be found.	Summarises causes of common diseases in own community.	Predicts, from information in newspaper, what will happen if we don't take "health action".	Critically evaluates resources on health information, health services and a range of treatment options, including HIV/AIDS.	Compiles a report on findings.	Describes findings to class.	Evaluates other classmates' findings.

# SENIOR PHASE

## Natural Sciences



Learning Area: **Natural Sciences****Theme: Kingdoms****Grade 7**

Pages 22-28

**Biodiversity**

- plants, animals and microorganisms, and their habitats make up the total biodiversity of the Earth
- plants, animals and microorganisms, and their habitats make up the total biodiversity of the Earth
- living organisms are sorted and classified according to their shared characteristics
- scientists have grouped the organisms into a classification system
- the five main groups (called Kingdoms) of living organisms include Bacteria, Protista, Fungi, Plants and Animals

**Classification of living things**

- the five main groups (called Kingdoms) of living organisms include Bacteria, Protista, Fungi, Plants and Animals
- Kingdoms are further subdivided into Phyla/Divisions, then Classes, then Families, then Orders, then Genera, and the smallest group is Species
- plants, animals and microorganisms, and their habitats make up the total biodiversity of the Earth
- basic differences in processes such as movement, nutrition and reproduction, distinguishes plants from animals

**Diversity of animals**

- plants are classified as plants with seeds (such as maize) or plants without seeds (such as ferns)
- plants with seeds are Angiosperms (flowering plants) and Gymnosperms (cone bearing plants such as the cycad)
- plants can produce their seeds in flowers (Angiosperms) or in cones (Gymnosperms)

**Grade 8**

Pages 22-28

**Microorganisms**

Types of micro-organisms

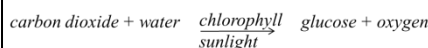
- micro-organisms are living things
- there is a variety of micro-organisms, including Viruses, Bacteria, Protista and Fungi

**Harmful micro-organisms**

- some micro-organisms cause diseases, such as TB (caused by bacteria), AIDS (caused by HI virus), malaria (caused by a protest)
- disease causing organisms are found almost everywhere, such as at ATMs, handrails of staircases and toilets

**Useful micro-organisms**

- some micro-organisms are used by people for making certain foods (such as yoghurt) and medicines (such as penicillin)
- Photosynthesis and respiration**
- plants use carbon dioxide (from the air), water (from the soil) and energy from the Sun in a series of chemical reactions to produce glucose (food). This process is called photosynthesis
- oxygen gas is released into the air as a by-product



- plants change glucose into starch, cellulose and other chemical compounds to enable processes such as growth and reproduction

**Interactions and interdependence within the environment  
Ecosystems**

- an ecosystem consists of an ecological community that includes all living organisms (biotic) such as plants and animals, together with the non-living (abiotic) environment such as temperature, wind, water, interacting as a system

**Grade 9**

Pages 22-28

**Birth, life and death of stars****Life of a star**

- our Sun is about half way through its life cycle – it is a medium-sized yellow star with a lifespan of about 9 billion years
- later, towards the end of their life, stars like the Sun will swell up to form a 'red giant'

**Cells as the basic units of life**

- the cell is the basic structural and functional unit of all living organisms. Cells can be seen under a microscope (they are microscopic)

**Cells in tissues, organs and systems**

- cells come in many different shapes and sizes
- cells are adapted to perform specific functions, such as muscle cells which are specialised to contract and enable movement
- microscopic organisms such as bacteria, consist of a single cell. Macroscopic organisms such as humans, consist of large numbers of cells

**Cells as the basic units of life****Cell structure**

- plant and animal cells have a cell membrane, cytoplasm, nucleus, and organelles such as mitochondria, vacuoles and chloroplasts

**Differences between plant and animal cells**

- plant cells differ from animal cells
- plant and animal cells are enclosed by a cell membrane, and plant cells also have rigid cellulose *cell walls* to provide support for the plant
- plant cells also contain organelles such as large vacuoles and chloroplasts. *Chloroplasts* contain chlorophyll to absorb light energy for photosynthesis (refer to Grade 8 *Life & Living*). Vacuoles in plant cells have several functions including support and storage (Vacuoles in animal cells are small and temporary or absent)



Learning Area: **Natural Sciences****Theme: Kingdoms****Grade 7**

Pages 22-28

**Grade 8**

Pages 22-28

**Sexual reproduction**

- **growing** plants such as beans or maize seeds to observe the stages in the life cycle. Measure the height of the plant as it grows. Record observations in diagrams, tables and graphs

**Relationship of the Sun to the Earth  
Solar energy and life on Earth**

- plants absorb light from the Sun and produce energy containing food (refer to Grade 8)
- all plants and animals depend on this process for their energy (refer to Grade 8)

**Feeding relationships**

- plants are *producers*. They make their own food. animals are *consumers*. They obtain food from plants either directly (such as herbivores) or indirectly (such as carnivores)

**Energy flow: Food chains and food webs**

- plants (and algae) play an important role in the ecosystem, as they capture energy from the Sun by the process of photosynthesis

**Background knowledge**

**Africa is the birthplace of humankind.** What is humankind? What is a human? **To which KINGDOM do you belong?**

Plants, Fungi, Animals, Protists, Bacteria. Let's go and explore...

**Background info on kingdoms, classification, etc**

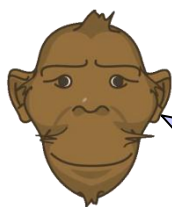
Carl Linnaeus (1707-1778) was a Swedish botanist and physician who devised the scientific classification of all plants and animals into a family, genus and species. His basic system is still in use, though it has been modified over the years.

In order to study living things, scientists today classify each organism according to its: phylum, class, order, family, genus and species. On the next page learners can classify themselves.

**Species: sapiens**

At present, classified species include 4,000 different mammals, 9,000 birds and 750,000 types of insects.

But hundreds – possibly thousands – of species are becoming extinct every year.



- What does extinct mean?
- What will happen if a specific species becomes extinct?

Some estimates put the number of species dying out at about 100 every day; even conservative records of extinctions run to more than 500 a year.

## Investigation

Learners should do the activities on the next page before visiting Maropeng. Tell the learners that they are going to conduct an investigation of the six kingdoms of living things when visiting Maropeng. See last page.

### Investigation sheet

#### Before the investigation (plan)

Title of science investigation:

- What do you want to find out?
- What will you do to find this out?
- What will you need to use?

#### During the investigation (conduct)

Write your results here.

#### After the investigation (evaluate and conclude)

- What happened?
- Can you explain why this happened?
- What did you learn from the investigation?
- If you could do the investigation again, would you change anything about the way you conducted it? Explain what and why.



Learning Area: **Natural Sciences****Grades 7-8****Pattern of diversity**

All living things are classified according to Kingdom, Phylum, Class, Order, and Family. Answer all five correctly to classify humans properly, according to these categories.

Kingdom/Phylum/Class/Order/Family

To which **KINGDOM** do you belong?

✓

Plants

Fungi

Animals

Protists

Bacteria

Which **PHYLUM** are you in?

✓

**Chordata**

Vertebrates (animals with backbones), including mammals, birds, reptiles, amphibians, fish and closely related invertebrates.

**Arthropoda**

Invertebrates (animals without backbones), including insects, crustaceans, and spiders.

**Porifera**

Sponges.

**Mollusca**

Shellfish, such as oysters, snails, mussels, squid and octopus.

**Echinodermata**

Starfish, sea-urchins, sea-lilies and sea-cucumbers.

**Who are you?**To which **CLASS** do you belong?

✓

Birds

Reptiles

Mammals

Amphibians

Fish

Put yourself in one of these **ORDERS**.

✓

Rodents

Carnivores

Primates

Marsupials

Bats

Which **FAMILY** are you in?

✓

Hominidae

(Great apes; hominids and humans)

Tarsiidae

(Tarsiers)

Cercopithecidae

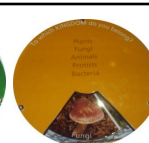
(Baboons, colobus and vervet monkeys; langurs and mandrills)

Daubentoniidae

(Aye-ayes)

Galagonidae

(Bushbabies and nightapes)



Learning Area: **Natural Sciences**
**Grades 7-8**

Plants and animals have life cycles that include being born, developing into adults, reproducing, and eventually dying.

**The details of this life cycle are different for different organisms.**

- Plants and animals closely resemble their parents.
- Many characteristics of an organism are inherited from the parents of the organism, but other characteristics result from the individual's interactions with the environment.

**Inheritance**

Inherited characteristics include the colour of flowers and the number of limbs of an animal.

1. Give more examples of things you think are inherited.

**Interactions**

Other features, such as the ability to ride a bicycle, are learned through interactions with the environment and cannot be passed on to the next generation.

2. Give more examples of interactions with the environment.

Life cycles can be divided into the content themes of:

- Organisms
- Human Body
- Plants
- Natural Environment (This will be dealt with in Activity 3)

**Organisms**

- There are different groupings of organisms, both natural and artificial.
- Organisms are classified according to their significance in the current six-kingdom classification system.
- Many organisms have unique lifestyles and environments.

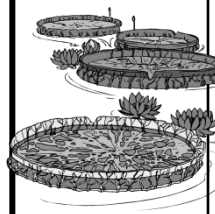
**Six kingdoms of life**

When Linnaeus developed his system of classification, there were only two kingdoms, Plants and Animals. But the use of the microscope led to the discovery of new organisms and the identification of differences in cells. A two-kingdom system was no longer useful. Today the system of classification includes six kingdoms.

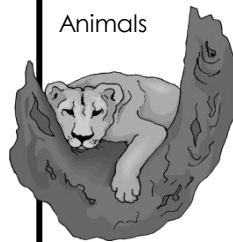
**How are organisms placed into their kingdoms?**

- Cell type, complex or simple
- Their ability to make food
- The number of cells in their body

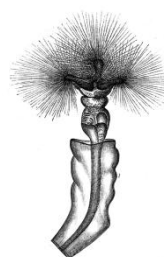
**The kingdoms are: Plants, Animals, Protists, Fungi, Archaeobacteria, Eubacteria.**

**Plants**


- Examples are flowering plants, mosses and ferns. Plant species range from the tiny green mosses to giant trees.
- Plants are all **multicellular** and consist of complex cells.
- Plants make their own food.
- With over 250,000 species, the plant kingdom is the second largest kingdom.

**Animals**


- The animal kingdom is the largest kingdom with over 1-million known species.
- All animals consist of many complex cells.

**Protista**


- Slime, moulds and algae are protists.
- Protists include all microscopic organisms that are *not* bacteria, *not* animals, *not* plants and *not* fungi.
- Most protists are **unicellular**.
- Protists are not classified in the Archaeobacteria or Eubacteria kingdoms because, unlike bacteria, protists are complex cells.

Learning Area: **Natural Sciences**
**Grades 7-8**
**Fungi**

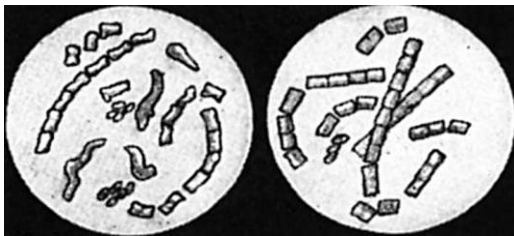

- Mushrooms, mould and mildew are all examples of fungi.
- Most fungi are **multicellular** and consist of many complex cells.
- Biologists once confused them with plants. However, unlike plants, fungi cannot make their own food. Most obtain their food from parts of plants that are decaying in the soil.

**Archaeobacteria**

- In 1983, scientists took samples from a spot deep in the Pacific Ocean where hot gases and molten rock boiled into the ocean from the Earth's interior. To their surprise they discovered unicellular (one-cell) organisms in the samples.
- Archaeobacteria are found in extreme environments such as hot water and thermal vents under conditions with no oxygen or highly acid environments.

**Eubacteria**

- Like archaeobacteria, eubacteria are complex and single-celled. Most bacteria are in the Eubacteria kingdom. They are the kinds found everywhere and are the ones people are most familiar with. They are classified in their own kingdom because their chemical make-up is different.
- Most eubacteria are helpful. Some produce vitamins and foods like yoghurt.



Microscopic organisms under the sea

**Humans**

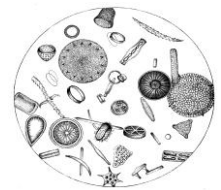
- Humans are highly developed organisms with various organ systems that are adapted for performing life-sustaining functions.
- Each organ system works with other organ systems in the total activity of the body.
- As humans, we learn about our bodies, and the needs and the things that make for successful living. The human body is very difficult to understand.

**More about plants**

- They surround and influence our very existence through their ability to supply oxygen to the atmosphere.
- The factors that influence plants also greatly affect the animal world.
- Plants are used for shelter, wood, clothes, paper, food, and medicines.

**Answer the following questions**

1. Name the six kingdoms.
  - a. Give one characteristic of each.
  - b. Give an example of each.
2. Why do you think that scientists classify organisms?
3. How are organisms classified in their kingdoms?
4. Are humans organisms?


**Teacher Assessment**

1. Not achieved	2. Elementary achievement	3. Moderate achievement	4. Adequate achievement	5. Substantial achievement	6. Meritorious achievement	7. Outstanding achievement
0-29	30-39	40-49	50-59	60-69	70-79	80-100
Cannot recall, categorise, interpret or apply information.	Recalls but cannot categorise or apply life cycles.	Needs more support in recalling, categorising, interpreting and applying information.	Recalls, categorises, interprets and applies life cycle. (7/8/9.2.1, 7/8/9.2.2, 7/8/9.2.3, 7/8/9.2.4)	Compares various life cycles.	Applies the information in his/her own area.	Writes a report on the six kingdoms.



Learning Area: **Natural Sciences****Grades 7-8****Activity 2** Investigation sheet**Before the investigation (plan)***(This section will be completed before visiting Maropeng.)*

Title of science investigation: \_\_\_\_\_

What do you want to find out?

\_\_\_\_\_

What will you do to find this out?

\_\_\_\_\_

What will you need to use?

\_\_\_\_\_

**During the investigation (conduct).** This should be based on the questions and your answers above.

You will do this at Maropeng.

Write your results here.

\_\_\_\_\_

**After the investigation (evaluate and conclude)**

What happened?

\_\_\_\_\_

\_\_\_\_\_

Can you explain why this happened?

\_\_\_\_\_

What did you learn from the investigation?

\_\_\_\_\_

If you could do the investigation again, would you change anything about the way you conducted it?

**•Explain what and why.****Assessment**Task 1: Before visiting Maropeng**Forms/ Techniques:** Written presentation **Method:** Question and answer **Tools:** RubricTask 2: Investigation**Forms/ Techniques:** Investigation **Method:** Teacher assessment **Tools:** Written assignment

# SENIOR PHASE

## Languages



Subject: **Languages**

Theme: **Communication**

**Grade 7**

Pages 30-36

**Writing and presenting**

**Write a dialogue, enacting drama**

- Requirements of format, style, point of view
- Target audience, purpose and context
- Word choice
- Appropriateness of certain utterances
- Free expression

**Focus on process writing**

- Planning
- Drafting
- Revision
- Editing
- Proof-reading and presenting

**Grade 8**

Pages 30-36

**Writing and presenting**

**Transactional texts**

**Report/magazine article**

- Features of the text
- Language use
- Register and style
- Introduction and conclusion

**Write a report/magazine article based on visual stimulus**

**Focus on process writing**

- Planning
- Drafting
- Revision
- Editing
- Proof-reading and presenting

**Listening and Speaking strategies**

**Oral: Interview/filling in a questionnaire report/group discussion**

- Research topic
- Organise material coherently support with examples.
- Identify and choose the correct vocabulary, language and conventions
- Prepare effective introduction and conclusion

**Grade 9**

Pages 30-36

**Listing and speaking**

**Discuss findings**

**Oral presentation of report**

- Language use
- Register
- Tone
- Body language
- Introduction and conclusion

**Writing and presenting**

**Long transactional texts:**

Such as report/interview

- Requirements of task and text type
- Format, style, point of view
- Target audience purpose and context
- Word choice
- Sentence structure, lengths and types
- Paragraph conventions

**Focus on process writing**

- Planning
- Drafting
- Revision
- Editing
- Proof-reading and presenting

**Write a report following the process approach to writing**

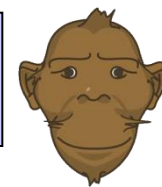
**Background knowledge**

When visiting Maropeng, communication plays an important role. Why? Let us explore.

**Humans can communicate with each other in ways that no other creature can. How?**

Language helps people create a sense of identity? Why?

**What does language allow us to achieve?**



What would life be like?



**Communicate specific messages and plan for the future**

Language allows us to communicate precise messages about an infinite amount of things. Many animals can produce sounds to communicate, for example, when they are threatened.

But only humans can articulate sounds that transmit a specific message that can range from a simple call for help to a discussion about our feelings or plans for the future.

Perhaps language developed in order to help plan hominid activities such as foraging or hunting expeditions.

The ability to communicate with each other would have allowed hunters to co-ordinate a hunt strategically, surround an animal effectively and strike at the right time.

**Complex social interaction**

**Think of how your life would be if you could not share your experiences with your friends. What would life be like?**

Language helps us articulate our experiences, our humanness, and to understand ourselves and one another better.

The ability to communicate abstract concepts has benefits for our life within social groups.

We learn a lot from our families and friends, not only about the physical world, but also about other people's feelings and beliefs.

Language enabled early humans to have a better understanding of each other and themselves.



## Communicate across time and space

Messages can be carried from one individual to another or many others through words. Recent technologies, such as satellites, television, the internet and mobile phones, have allowed us to communicate across the globe to millions of people simultaneously.

**What would you do without a telephone, a computer, or a television set? What about all three?**



## Non-verbal communication

(After introducing yourself, try this activity.)

Work in pairs. Explain to your partner without speaking or using any aids – except for your hands and face, and using body movements – what you did last holiday. After three minutes, swap and let your partner explain what he or she did for three minutes. Next, explain to one another what you understood by your partner's actions. How accurate or inaccurate was your understanding? What is the importance of verbal communication? How much can people communicate non-verbally?

## Say what?



**Do you only communicate by speaking? What else? How? Why?**

There are at least two central elements to human language: the physical development of the vocal tract, and the mental ability to communicate using symbols. The combination of these elements is unique to humans. Attempts to teach apes to talk have been unsuccessful because apes' throats are anatomically different and they simply cannot produce our range of sounds. Research has also shown that chimpanzees, for example, may hear differently to humans, which could inhibit their ability to reproduce sounds.

## The Talker

Language enables us to interact with each other through symbols.

Introduce yourself to your friend without speaking. Was it easy? How did you do it?

Humans are unique because they can create new symbols and agree on their meaning. For example, these symbols can describe objects – like “river”, “meat” and “hyena” – and emotions – like “kindness”, “despair” and “love”.

We also use these symbols in different sequences, through an agreed system called grammar, to deliver different meanings and subtleties, some of which are abstract and aren't associated with objects.

Language is a relatively recent attribute in hominid evolution. Although some animals perhaps communicate with each other through gestures or sounds, these are not usually arranged in complex sequences, and can only deal with immediate events.

**How did we come to talk?**



Some researchers argue that although hominids could have developed a vocabulary, the leap to complex language was a sudden one – perhaps linked to mutations in the brain.

A mutation of the FOXP2 gene, estimated at about 200,000 years ago, contributed to changes in the capacity for speech, influencing the development of language. Palaeoanthropologist Ian Tattersall has suggested that only *Homo sapiens* has been able to speak a language, though Professor Phillip Tobias thinks *Homo habilis* may have been the first to speak.



## First words



Do you know what your first spoken word was? If not, find out.

Physical changes to the size and organisation of the brain together with changes in the throat, tongue and vocal chords enabled hominids to begin speaking to one another using symbols.

But physical changes don't tell us exactly when complex language and abstract thought began.

Perhaps the early toolmaker, *Homo habilis*, agreed upon the first symbols to teach others how to make tools. But this knowledge could have been passed on through gestures and mimicry – a simple form of communication, but not language as we know it.

Maybe speech and vocabulary evolved gradually, with names being assigned to objects like tools and animals, and later words being attached to concepts like "go hunt" or "fetch water".

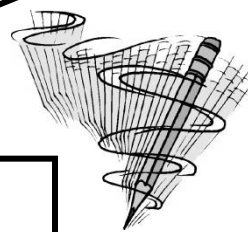
As hominid brains grew with the emergence of different *Homo* species, these symbols may have eventually led to complex language.

On the next two pages learners have some work to do at school.

Imagine you are a story writer. You have just gone through the Maropeng exhibition. The editor of *Maropeng Magazine* asks you to write between one and two pages on one of the topics below. Remember: you must ensure that you meet your deadline.

### Creative Writing: Activity 1

- Write a creative writing essay of about two pages based on one of the following:
  - If you could choose one person to talk to, who would it be and why?
  - You meet a caveman for the first time. What would you say to him and why?



### Creative Writing: Activity 2

- You are the last person on Earth. Write a note explaining what has happened.

## Learning Area: Languages

## Grades 7-9

**Listening and Speaking: Oral presentation****Grade 7**

- Prepare a short speech on the subject of language. Be prepared to deliver it to the class.

**Grade 8**

- We all have words we love to hear and say, even though we're not always sure what they mean. Tell the class one of your favourite words and why.

**Grade 9**

- Prepare a speech on why language is an important milestone in human evolution.

This Assessment Rubric will be used to assess your Oral Presentation. Make sure you prepare well.

	<b>Great</b>	<b>Nice</b>	<b>Good start</b>	<b>Stop, I or we need more help</b>
<b>Gathering information</b>	Gathers a lot of information from a range of sources	Gathers information from a few sources	Gathers some information from a source	Little information gathered
<b>Organising information</b>	Information is very well organised	Information is organised	Tries to organise information	Shows little skill in organising notes
<b>Using information</b>	Shows in-depth insight in drawing conclusions from information	Shows insight using the information	Uses some of the information to make a decision	Shows little understanding of purpose for gathering information
<b>Organisation of presentation</b>	Uses support to present findings	Presents findings	Presents with some organisation	Presentation is not organised
<b>Persuasiveness</b>	Makes dramatic argument	Good argument	Shows little evidence of persuasion	Is not persuasive
<b>Teamwork</b>	Works as a unit and makes a good presentation	Works as a group to make the presentation	Works together to make the presentation	Does not work together
<b>Use of technology</b>	Uses technology	Technology helps with message	Uses some technology	Does not use technology
<b>Rehearsed</b>	Presentation is well rehearsed	Presentation was rehearsed	Presentation showed little rehearsal	Presentation was unrehearsed
<b>Vocal projection</b>	Projects voice very well	Projects voice well	Difficult to hear	Cannot hear
<b>Vocal expression</b>	Speaks fluently and expressively	Speaks clearly	Hard to understand	No expression
<b>Posture and eye contact</b>	Uses good posture and eye contact	Uses posture and eye contact	Unassuming posture and little eye contact	Uses poor posture and no eye contact
<b>Facial expression and body language</b>	Uses facial expression and body language well	Uses facial expression and body language	Uses little facial expression and body language	No facial expression and body language

Learning Area: **Languages**
**Grades 7-9**

Why do we write a report?	To inform	To explain	To persuade
To transmit ideas	To transmit information	To transmit facts or findings	To research a problem
To define a problem	To draw a conclusion	To make a recommendation	To record information

This Assessment Rubric below will be used to assess your Written Presentation.

### Report Writing

You have just discovered an island populated with hominids (ancient human ancestors) who are using stone tools and talking in grunts. Write a report to your government explaining what you have encountered.

You may use some or all of the notes below:

- Hominids encountered previously thought extinct
- Using stone tools to crush food
- Communicating in grunts
- Aggressive to outsiders
- Sleep in trees at night
- Know how to find water very well

	<b>Great</b>	<b>Nice</b>	<b>Good start</b>	<b>Stop, I or we need more help</b>
<b>Topic</b>	Focuses on topic	Focuses on topic and includes a few loosely related ideas	Contains ideas that are loosely connected to the topic	Addresses topic but loses focus because of loosely related ideas
<b>Ideas</b>	Logical progression of ideas	Logical progression of ideas	Includes a beginning, middle and end but elements are brief	No logical progression at all
<b>Sentence structure</b>	Sentence structure varied	Word choice is adequate	General conventions are used	Errors in basic conventions
<b>Writing conventions</b>	Mature understanding of writing conventions	Understanding of writing conventions	Partial understanding of writing conventions	Errors in basic conventions
<b>Specific details</b>	Specific details	Some specific details	Development of support is uneven	Development of support is nonspecific

Learning Area: **Languages****Grades 7-9****Poetry****Write a poem to:**

- someone you love
- someone who has done something special for you
- an unborn child

**Writing a Poem**

Write a poem about \_\_\_\_\_

Will your poem be an **idea**, a **thought** or an **emotion** from the heart?Is your poem going to be **happy** or **sad** or **humorous**?Do you have a **paper** and a **pencil**?Do you have a **rhyming dictionary**, **thesaurus** or **dictionary**?What is your main **idea** or **thought**?

- Write a **free verse poem**. A free verse poem has no fixed rules.

Write down your thoughts. (Don't worry about spelling, punctuation, long or short lines; just change your thoughts into written text.)

**Place your poem next to this page and look at it.**Does your poem have a **beginning**, a **middle**, and an **end**? \_\_\_\_\_

If not, you need to add more information to give your poem a beginning, a middle and an end.

Reread your poem several times and listen to the words and to the rhythm of each line.

It is now time to:

- shorten or lengthen each line
- choose to make each line rhyme with the next line if you want it to

Reread your poem again and check for:

- proper punctuation
- proper spelling

What will the title of your poem be? \_\_\_\_\_

# SENIOR PHASE

## Technology





Learning Area: **Technology**Theme: **What my body can do? What can machines do?****Grade 7**

Pages 38-39

**Mechanical systems and control****Content, concept and skills****Simple mechanisms**

Levers – mechanical advantage: simple quantitative treatment – no calculations using moments. Examine the relationship between load, effort and their distances from the pivot.

- First-class levers: characteristics (fulcrum/pivot placed between effort and load).
- First-class levers may give a mechanical advantage or not – depending on pivot position.
- Case study: first-class levers with mechanical advantage:  $MA > 1$  ;  $MA = 1$  ;  $MA < 1$  .
- Second-class levers: characteristics (load is placed between effort and fulcrum); give real examples.
- Learners demonstrate models of second-class levers, which always give a mechanical advantage.
- Third-class levers: characteristics (effort is placed between load and fulcrum); give real examples
- Learners demonstrate models of third-class levers, which never give a mechanical advantage.

**Grade 8**

Pages 38-39

**Mechanical systems and control****Content, concept and skills****Simple mechanisms**

**Revise: Levers** – single levers and levers linked in pairs.

Single first-class lever – mechanical advantage depends on the position of the fulcrum.

Linked first-class levers – consider various samples, e.g.:

- Paper scissors (if equal length blade and handle) – no mechanical advantage.
- Secateurs (long handle and short, strong blades) – mechanical advantage  $> 1$ .
- Single second-class lever – always gives some mechanical advantage.
- Linked second-class levers – consider various samples, e.g.:
- Office punch – mechanical advantage  $> 1$ .
- Heavy duty stapler – mechanical advantage  $> 1$ .
- Single third-class lever – never gives any mechanical advantage.
- Linked third-class levers – consider various samples, e.g.:
- Office light-duty stapler – mechanical advantage  $< 1$ .
- Pair of tweezers – mechanical advantage  $< 1$ .
- **Revision:** mechanical advantage. Well-designed machines give "**mechanical advantage**".
- All complex machinery consists of combinations of simple mechanisms.
- **The wedge:** e.g. inclined plane or ramp, door wedge, knife blade, etc.
- **The wheel and axle:** e.g. from bicycle to shopping trolley.

**Mechanical advantage calculations****Calculate mechanical advantage (MA)**

- **Levers:** mechanical advantage calculations for levers using ratios.
- Calculations using  $LOAD/EFFORT$ ;  $load\ ARM/effort\ ARM$ ; etc.
- *Do NOT use the method of "taking moments about a point".*

**Grade 9**

Pages 38-39

**Mechanical systems and control****Investigation skills****Content, concept and skills**

- **Revise:** syringe mechanics using two equal sized syringes linked by a tube.

Force transfer between the syringes filled with:

- Compressed air – pneumatic system.
- Water – hydraulic system.

**Background knowledge**

Life first emerged about 3.8-billion years ago. Our journey begins in South Africa, where fossils of some of the earliest known life forms on Earth have been found. Let us see how the body move ...



**Let's get physical: The amazing body**

Can you move this? How does it move?

**Ball and socket joint**

Teacher points to figure: This is a ball-and-socket joint. This is the most mobile joint. What does mobile mean? Why do you think this is the most mobile joint? Name the ball-and-socket joints. Swing your arm and then your leg in many directions. Place your hand on your friend's ball-and-socket joint. What do you feel when he or she swings his/her arm?

Can you move this? How does it move?

**Hinge joint**

Teacher points to figure: [This joint moves similarly to the opening and closing of a door. Show this movement using your knee and then elbow.]

Can you move this? How does it move?

**Pivot joint**

Teacher turns his or her head. [Which joints do you think do we use to turn our heads?] [We call these joints pivot joints.] [What does pivot mean?]

**Semi-movable joint:**

Bend and touch your toes. What helps you to bend? The spine is a semi-movable joint. Why do you think it is a semi-movable joint? How is it different from the other joints?

Can you move this? How does it move?

**What is a piston?**

A solid cylinder or disk that fits snugly into a larger cylinder and moves under fluid pressure, as in a reciprocating engine, or displaces or compresses fluids, as in pumps and compressors.

**What is a pivot slider?****Example: Pivot slider**

- Automotive gear shift selector
- Exercise machine

**Example: Pistons**

- Internal combustion engine
- Steam-powered engine
- Hydraulic jack

**Investigate the following at Maropeng. Explain the motion.**

Explain the motions of the other joints and link them to real-life machines. How do these machines help us?

# SENIOR PHASE

## EMS



Learning Area: **Economic and Management Sciences**Theme: **What is your future?****Grade 7**

Pages 41-46

**Financial literacy:****Budgets**

Definition of a budget; income; expenditure; a personal budget; business budget

**Grade 8**

Pages 41-46

**Entrepreneurship:**

Levels and functions of Management Different levels of management; management tasks such as planning, organising, leading, and controlling; characteristics of good management; different styles of management – autocratic style, permissive or free-reign style (laissez-fair), democratic or participatory style

**Grade 9**

Pages 41-46

**Entrepreneurship:**

Functions of a business  
Functions of a business: administration, purchasing, marketing, finances, public relations, human resources, production, general management, and risk management; characteristics of the business functions; role and importance of the business functions

**Business plan**

Concept of a business plan; components of a business plan; format of a business plan [the front cover, table of contents, description of the product or services offered by the business, goals of the business, the business owner, production plan, marketing plan, management plan, SWOT (strengths, weaknesses, opportunities, threats) analysis and conclusion]; financial plan (fixed and variable costs, break-even points, mark-up on sales, profit percentage)

**Background knowledge**

Southern Africa has the highest proportion of people living on less than \$1 per day. About 40% of the region's 190-million people live in extreme poverty.

– Ralph Hamann, Zarina Patel & Michelle Pressend, *Environment*, July/August 2002

**Complete the activities on the next three pages before visiting Maropeng**

(The background knowledge will help learners with the activity on the next page.)

**Ideas for tourism (business generation)**

There are many different types of business operating in the Cradle of Humankind, including shops, petrol stations, hotels and guest houses, and tourist attractions (e.g. Kromdraai Gold Mine).

**The Cradle of Humankind has created thousands of jobs and is having a positive impact on the local economy.** According to the Premier of Gauteng province, Mbhazima Shilowa, "We have invested more than R160-million in the area. Together with the private sector we have created work opportunities – temporarily and permanently – for more than 9,000 people. We have changed lives for the better. Above all, we have altered the economy of what was once the least developed area in the province."

Learning Area: **Economic and Management Sciences**

Theme: **What is your future?**

### Activity at Maropeng

**Ask learners to read the top left-hand side of the display.**

"The world is faced with a dilemma: countries need to develop economically and to do this they need natural resources, but at the same time, they need to preserve the environment so that future generations can succeed."



What is a natural resource?

What does it mean to preserve the environment?

**Read the right-hand side of the display.**

"A global human society based on poverty for many and prosperity for a few, characterised by islands of wealth, surrounded by a sea of poverty, is unsustainable," – Thabo Mbeki, President of South Africa, opening the World Summit on Sustainable Development, Johannesburg, August 2002.





As the teacher and learners walk through the exhibition, the teacher can point out where jobs have been created. He or she can also ask questions such as: what type of job was created here?

**In the building of Maropeng, many different types of businesses were involved. These included:**

- Architectural companies
- Building contractors to build the various buildings, as well as the new roads leading to the site
- Exhibition design companies that employ graphic designers, writers, researchers and draughtsmen
- Film production companies, to produce the various short films and multimedia items on display
- Audio-visual companies, to ensure the various sound systems play the right background noise at the right time
- Engineering companies, to design and manufacture the boat ride, for example
- Landscaping companies, to plant all the indigenous gardens around Maropeng
- Marketing and advertising companies, to design and organise advertising on billboards, in magazines, etc

**At Maropeng itself, the following types of businesses are operating for tourists:**

- curio shops
- restaurants
- the visitor centre/exhibition
- tour companies
- other types of shop – e.g. local crafts, clothes

**Many other types of businesses supply the businesses at Maropeng, or work behind the scenes. These include:**

- Clothing manufacturers who make t-shirts, hats, etc
- Publishers of postcards, guide books, maps, etc
- Cleaning companies
- Companies that provide food to the restaurants; educational materials; advertising services; etc.

**Altogether, thousands of people working in different fields are employed directly or indirectly by Maropeng.**

**Learners use the above information and the information on the next page to complete the following tasks at Maropeng.**

### Grade 7 and 8

Give each learner a small piece of paper. Each must write down a job they think a person will do at Maropeng. The teacher retrieves the pieces of paper and puts them in a bag. The teacher then takes the pieces of paper out one-by-one and reads out the jobs, after each job the teacher can ask: Did we use community resources to create this job? How did we create this job? Will this job lead to creating more jobs? (Through these activities learners should learn what important roles human resources are playing.)

### Grade 7 and 8

After exploring Maropeng, learners will be asked to generate an idea for a small business at Maropeng.

You will need to write down:

- a name for your business
- a short description of what your business does, including what you are going to sell (services or products), and to whom
- a budget, or projection of costs (including salaries, materials, etc) and profits for the first year.

(The aim of this is to do it at Maropeng in a given time.)

### Grade 9

Conduct a SWOT analysis on Maropeng as a business venture (see the table below for some ideas). Remember, sometimes things can be placed in more than one category at the same time.

#### Maropeng Visitors' Centre, Cradle of Humankind

- Strengths – World Heritage Site
- Weaknesses – An hour's drive from Jhb/Pta
- Opportunities – Provide overnight accommodation for learners
- Threats – Other tourism attractions in area

Once you have done the above as a class exercise, or in small groups, you will be ready to conduct a SWOT analysis for a new business on your own, with a partner, or in a small group.

Come up with an idea for a small business at Maropeng, and conduct as extensive a SWOT analysis as possible on your idea.

**Needs**

Needs are things people must have to live, such as food, clothing and shelter.

**Wants**

**Wants are things people like to have but do not need in order to live.**

**Revision****Modern society**

In a **modern society**, people produce to look after the needs and wants of other people.

In a modern society, it is easier to get certain things. If you have access to more things, do you think you will use more of these things? Why?

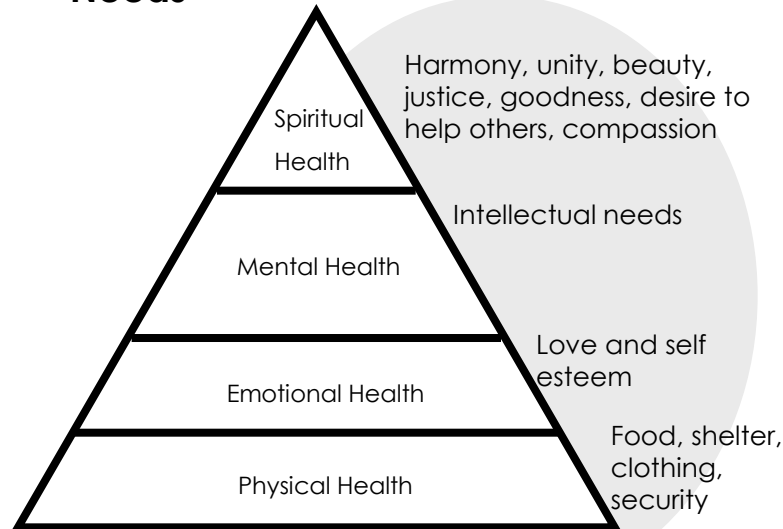
**Self-sufficient societies**

In **self-sufficient societies**, people produce to look after their own needs.

In self-sufficient societies, people live differently than they do in modern societies. Why do you think this is so?

**Entrepreneurs**

Entrepreneurs see needs and change them into opportunities.

**Needs****Complete the following:**

1. If somebody is homeless, what will you do? Where on the triangle does this person's need fall?
2. If somebody struggles to learn something, what will you do? Where on the triangle does this person's need fall?
3. If somebody is crying because they are lonely, what will you do? Where on the triangle does this person's need fall?
4. If somebody would love to have a beautiful garden, what will you do? Where on the triangle does this person's need fall?

5. What do you think the needs are in your school?

6. What do you think the wants are in your school? You may need to interview teachers, learners and other people involved in your school to answer this.

As humans evolved, we developed more advanced needs. Prehistoric communities spent much of their time looking for shelter, warmth and food. These communities would have been unable to survive without these basic needs. But as technology developed to meet these needs – such as the harnessing of fire and agriculture – so our needs developed. We developed things like art and literature to satisfy more advanced needs. Discuss this in your group.

Learning Area: EMS

Grades 7-9

What is a community? What is the environment? Learners explain how they think the differences between needs and wants impact on communities and the environment.

### What is a community?

A community is a set of people with some shared element. For example, a group of people who live in the same area is a community. The elements vary widely, from a situation, to interests, to lives and values.

Here are a few more definitions:

- the people with common interests living in a particular area

[www3.newberry.org/k12maps/glossary/](http://www3.newberry.org/k12maps/glossary/)

- people who live in the same area or share the same interests

[www.headsup.org.uk/content/default.asp](http://www.headsup.org.uk/content/default.asp)

### What is the environment?

- Everything that surrounds anything.

[web.mala.bc.ca/webquests3/Save%20Human%20Race/glossary\\_text.html](http://web.mala.bc.ca/webquests3/Save%20Human%20Race/glossary_text.html)

- The interaction of climate, soil, topography, and other plants and animals in any given area. An organism's environment influences its form, behaviour, and survival.

[forestry.about.com/library/glossary/blforgle.htm](http://forestry.about.com/library/glossary/blforgle.htm)

- The physical environment around us.

[www.o2.com/o2\\_glossary.asp](http://www.o2.com/o2_glossary.asp)

- A number of populations of plants and animals that live and interact with one another in a specific area with similar environmental conditions.

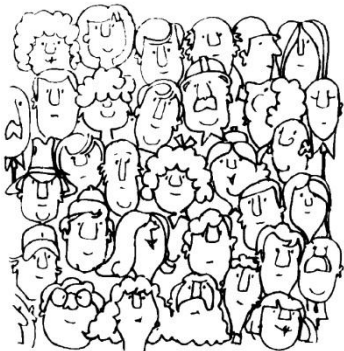
[www.orcasisle.com/~elc/outdoorschool/vocab.htm](http://www.orcasisle.com/~elc/outdoorschool/vocab.htm)

- A collection of living organisms thriving in an organised system through which water, energy, and nutrients cycle.

[www.dnr.state.md.us/forests/gloss.html](http://www.dnr.state.md.us/forests/gloss.html)

- A group of different populations.

[www.planetpals.com/ecodictionary.html](http://www.planetpals.com/ecodictionary.html)



The environment and the community are interactive and dependent on each other.



The environment is something you are very familiar with. It is everything that makes up our surroundings and affects our ability to live on Earth.

1. Read the above statements. What is the community? How do the environment and the community fit together?

Living in communities has undoubtedly helped humans survive and spread all over the world. For instance, living in groups provides defence against predators – a group can be more vigilant and dangerous than individuals. Groups can also be more efficient than individuals at discovering and defending sources of food.

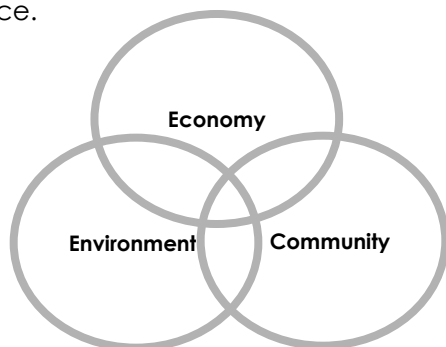
As our living communities have developed into 100s, 1,000s and millions of people, so has the pressure we place on the environment. There are now cities with tens of millions of people living in them. As our numbers grow, we are depleting habitats and placing pressure on our energy, food and water resources. Today, governments are trying to find ways to balance our need for community with our need to have a sustainable environment. Discuss this in your groups.

Learning Area: **EMS**

**Grades 7-9**

## Sustainable

Where economy, community, and environmental systems overlap and are in balance.

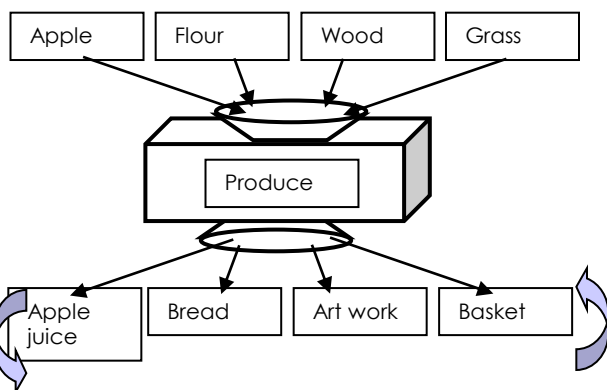


## What does economy mean?

Look at the diagram below and discuss it in your groups

## The system of

### production



### distribution

**Where to?** Community? South Africa? World?

**To who?** Self-sufficient society? Modern society?

### consumption

**Who?** What is the need? What are the wants?

## As an entrepreneur

You need to establish what the needs and wants of the community are.

## Scenario 1

You visited a community that has very little food, clothing and who live in 'shacks'.

## Needs

Needs are things people must have to live, such as food, clothing and shelter.

## Wants

**Wants are things people like to have but do not need in order to live.**

- Where will your focus be – needs or wants? What will you produce or what service will you deliver?
- How will this impact on the environment?
- How will this impact on the community?

## Scenario 2

You visited a well-established community with enough clothing, food and shelter.

- Where will your focus be, needs or wants? What will you produce or what service will you deliver?
- How will this impact on the environment?
- How will this impact on the community?

## Patterns of consumption

The **use** of natural resources is essential to human life all around the world.

The air, water, energy, food and other resources that come from nature help us to survive.

We live by making or growing resources, and then using these products.