



AFRICA ADAPTATION PROGRAMME FOR CLIMATE CHANGE
REPUBLIC OF MAURITIUS



Teacher's Manual on Climate Change Education

FOR PRIMARY SCHOOLS



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Project Team

Foreword

Climate change (CC) is one of the most critical issues facing the world today and could potentially cause massive and irreversible damage to the global environment and human society. With changing climatic conditions, small islands are particularly at risk from increasingly unpredictable weather and the danger of rising sea levels. Despite Mauritius' geographical isolation, we are equally vulnerable to the effects of climate change.

Climate variability worldwide and its impact on weather events have been noted in Mauritius, Rodrigues and Agalega. We are already experiencing considerable economic loss, humanitarian stresses and environmental degradation. A number of initiatives have been undertaken to address CC and other related environmental challenges that we are likely to face. Both public and private sectors are making efforts to integrate issues of climate change in new development strategies. The Government recognizes the need for appropriate education that addresses CC (risks, disasters, risk reduction, adaptation and mitigation measures etc.) and empowers its citizens to make informed decisions on matters related to CC; this will increase our adaptation capacity with regard to coping with CC. These actions are being supported by various international organizations and programmes such as Africa Adaptation Programme (AAP).

AAP was launched in 2008 by the United Nations Development Programme (UNDP) in partnership with the United Nations Industrial Development Organization (UNIDO), the United Nations Children's Fund (UNICEF) and the World Food Programme (WFP). This programme benefited from US\$92.1 million support from the Government of Japan. The Ministry of Environment and Sustainable Development (MOESD), together with the UNDP, is leading the AAP in Mauritius. The AAP also aims at attaining a number of specific objectives, including promotion of Climate Change Education (CCE) at all levels in the country.

The Mauritius Institute of Education (MIE)- AAP Project is in line with UN Decade of Education for Sustainable Development (DESD, 2005 -2014) and the 'Maurice - Ile Durable' (MID) project. The project includes a range of activities and emphasizes the UNESCO's work around its strategic objectives such as building and maintaining the CC knowledge base (science, assessment, monitoring and early warning) and promoting mitigation of and adaptation to CC, including enhanced education and public awareness.

This manual intends to serve as resource kit for practising teachers and is also suitable for teachers undergoing training. It is designed to provide appropriate knowledge on CC and related disaster risk reduction (DRR) and hazards.

Other than being reader-friendly, this kit is written in a clear, concise, and thought provoking manner with a variety of student-centred activities. It provides various opportunities for developing children's understanding of CC and DRR, while enabling the learners to relate to basic principles of Science & Technology and Geography to everyday situations and settings. The young learners can also be instrumental in promoting CCE and DRR among their peers, at home and in their community.

The materials provided in this manual have been piloted with teachers and head masters whose opinions and suggestions have been taken into consideration. We have noted the enthusiasm of teachers and we hope that this manual will help them to confidently address CC and DRR in our schools.

Project Team



Abbreviations

AAP:	Africa Adaptation Programme
AAPCC:	Africa Adaptation Programme for Climate Change
CC:	Climate Change
CCE:	Climate Change Education
CCESD:	Climate Change Education for Sustainable Development
CFCs:	Chlorofluorocarbons
ESD:	Education for Sustainable Development
GHE:	Greenhouse Effect
GHG:	Greenhouse Gas
GW:	Global Warming
MID:	Maurice Ile Durable
MIE:	Mauritius Institute of Education
MMS:	Mauritius Meteorological Services
SIDS:	Small Island Developing States
UNCED:	United Nations Conference on Environment and Development
UNDP:	United Nations Development Programme
UNEP:	United Nations Environment Programme
UNESCO:	United Nations Education, Scientific & Cultural Organisation
UNFCCC:	United Nations Framework Convention on Climate Change
UNIDO:	United Nations Industrial Development Organization

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Part I: Introduction to the Manual

Introduction to the Manual

In 1992, international concerns about Global Warming was translated into the United Nations Framework Convention on Climate Change (UNFCCC) a global treaty which was encouraged to stabilize Greenhouse Gas (GHG) emissions. Climate change (CC) and sea-level rise are issues of major concern for all Small Island Developing States (SIDS). Mauritius signed the UNFCCC during the UNCED conference in Rio and was the first member state to ratify it. It also ratified the Kyoto Protocol in 2001. Furthermore, it is now reducing its emissions of greenhouse gases by implementing a number of projects on energy efficiency, alternative energy programmes and regular inventories of GHGs.

To stabilize the increasing GHGs in the atmosphere and adapt to CC requires the concerted actions of everyone. This is why UNESCO works in all its domains – education, culture, the sciences and communications – to address CC holistically. This project is therefore in line with the UNESCO CC initiative of the UNFCCC COP15 which aims at strengthening the scientific, mitigation and adaptation capacities of the countries and communities that are most vulnerable to the effects of CC.

Aim of the Project

The project, is therefore, aimed at sensitising all stakeholders on climate change issues, mitigation and adaptation strategies, through a variety of media and methods in the Republic of Mauritius (Mauritius, Rodrigues and Agalega).

Specific objectives:

- Sensitisation of teachers, students and parents on the implications of climate change and on adaptation strategies both internationally and locally for the individual, community and the country as a whole.
- Creation of a Mobile Graphic Exhibition on climate change and adaptation and of low cost models for demonstrating in all primary schools, the phenomenon of climate change.
- Organisation of competitions for learners at primary and secondary schools.
- Evaluation of the impact of the project on students and various stakeholders.

Therefore, we have developed this educational pack which offers primary school teachers a useful educational tool that meets their needs in terms of background information, teaching ideas and materials. This will help teachers to better mainstream concepts that are related to various subjects such as languages (English, French), Science, Mathematics, Health Education, History & Geography and the Creative Arts at primary level.



These resource materials and activities may be modified to make them relevant to social norms and contexts, cultural practices or religious convictions and alternative relevant materials/activities can be used when the need arises.

A project team was set up to carry out the study and it consisted of the following members:

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We do acknowledge the collaboration of:

Mr Gopaul Mardaymootoo
Ms Prishny Doorga

Why teach CC and DRR

Rising temperatures, changes in sea level, changing precipitation patterns, altered seasons and other environmental shifts brought about by CC have affected human societies in various ways in many countries.

Evidence shows that floods, winds, storms, earthquakes, droughts, volcanic eruptions, and tsunamis lead to about 400 natural disasters, an average of 74,000 deaths and more than 230 million people being affected every single year (CRED, 2008). CC is expected to increase the frequency and intensity of climate-related hazards such as floods, droughts and heat waves. When vulnerable communities lack resilience to face these hazards, there is the risk of enormous damage caused to individuals and society at large.

A UNESCO funded Education for Sustainable Development (ESD) project undertaken by the MIE (MIE, 2011) highlights that there is a lack of awareness on CC and DRR at school level. Therefore, there is an urgent need to address CC and DRR in our schools and to equip learners and their communities with life-saving knowledge that will help them to develop coping mechanisms, both as preventive and problem solving measures.

We have taken various steps to address CC and DRR in this manual, which we hope will create a stepping stone to further involvement, through creative ability of teachers, to build on what this booklet aims at achieving.

Teachers' role

We believe that teachers should help learners to grow up with an awareness of threats and risks, as well as to equip them with skills to prevent or to cope with unforeseen climatic situations.

We are confident that teachers can really make a difference by informing, challenging and nurturing their pupils to develop such skills and qualities for adaptation and survival in a fast changing ecological and environmental configuration. This manual emphasizes UNESCO's approach to climate change education and has been produced around three important and interlinked aspects. These are:

1. Understanding climate change
2. Mitigating climate change
3. Adapting to climate change



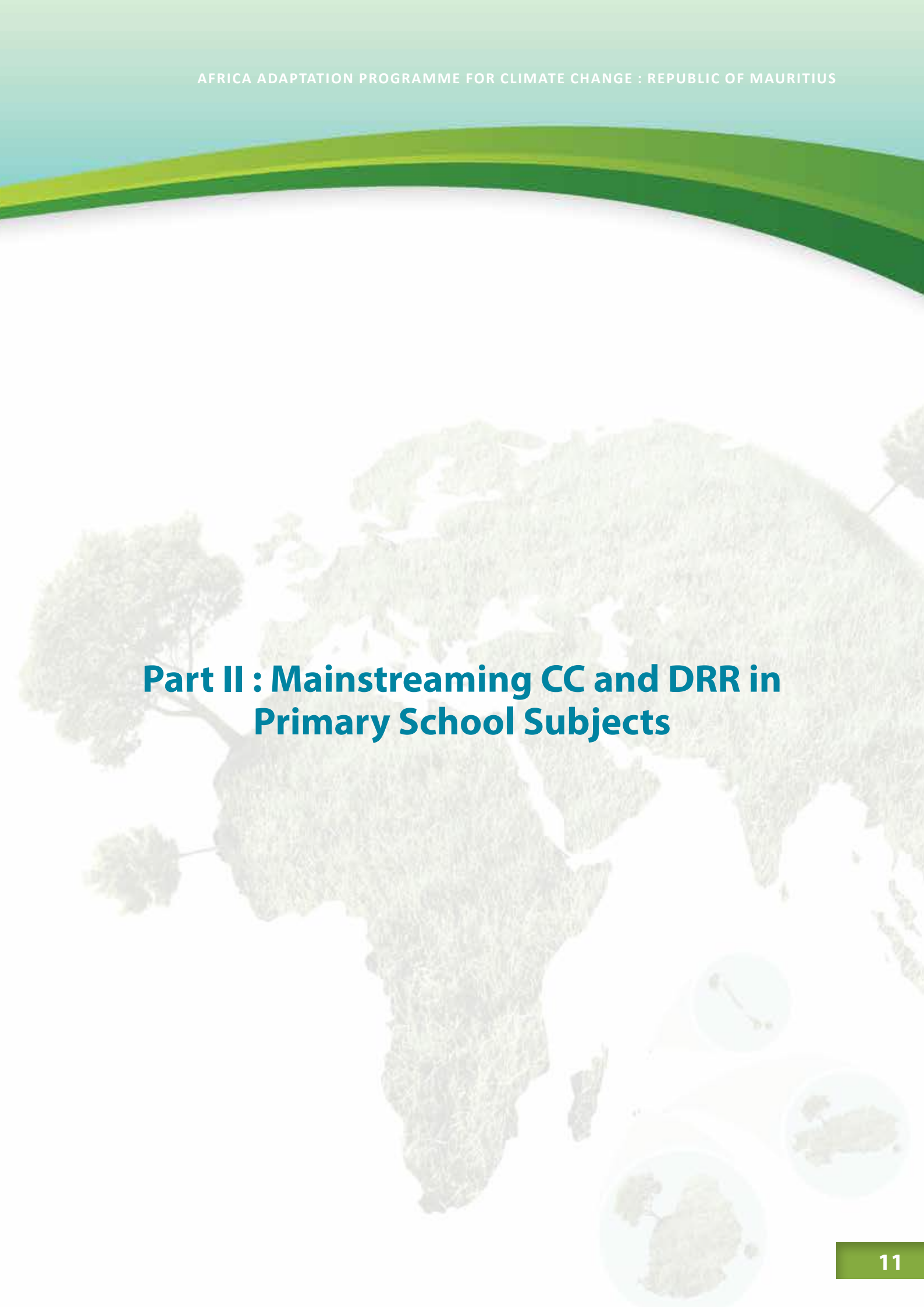
Organisation of this is manual

The manual covers only some major concepts of CC and DRR. The lessons build knowledge, skills, attitudes and values appropriate for primary school pupils. In the first part, we have provided some background information about CC and DRR for teachers. In the second part, a series of learning activities on CC has been presented in various subject areas. Teachers are required to carry out the activities in their class and to use them as ideas to develop their own teaching and learning activities/ materials.

Is this a new subject?

No.

We have provided ideas, lesson plans and activities that fit in the disciplines that already exist in the primary school curriculum. Teachers can use them as part of their teaching of various disciplines in the classroom. These activities will offer an alternative learning experience to the pupils, while developing skills and knowledge on an issue that is highly relevant to their day to day life. We face torrential rain, drought, heat waves, and even extreme cold climate. Teachers can use these lessons to develop understanding of such changes as well as prepare learners to be ready to cope with them.



Part II : Mainstreaming CC and DRR in Primary School Subjects



Introduction

This part includes two units:

Unit I: Background information

- Climate Change
- Disaster Risk Reduction

Unit II: Learning activities

- Learning activities on Climate Change
- Learning activities on Disaster Risk Reduction

This manual also includes other relevant elements:-

- Websites for further reading/ additional information
- Contact details (in case additional information is needed)
- List of books for further reading

Unit I: Climate Change and Disaster Risk Reduction

Unit I provides background information on CC and DRR. It provides the basic information that would build the background knowledge of teachers. It starts with the definition of some main concepts/terms generally used under CC and DRR Education.

INTRODUCTION

The following table highlights the definitions of weather and climate.

Weather	Climate
<p>Weather is what we observe about the sun, cloud, rain, temperature and wind.</p> <p><i>[Ministry of Education, Culture and Human Resources (2010) – History and Geography Standard 4]</i></p>	<p>Climate is what we observe about weather conditions over a long period of time.</p> <p><i>[Ministry of Education, Culture and Human Resources (2010) – History and Geography Standard 5 Part 2 – Pg 105]</i></p>
<p style="text-align: center;">The difference between weather and climate</p> <p>As so rightly put by a student: “Climate helps you decide what clothes to buy, weather helps you decide what clothes to wear.”</p> <p style="text-align: center;">http://epa.gov/climatechange/kids/basics/concepts.html</p>	



OUR CLIMATE : Republic of Mauritius

Introduction

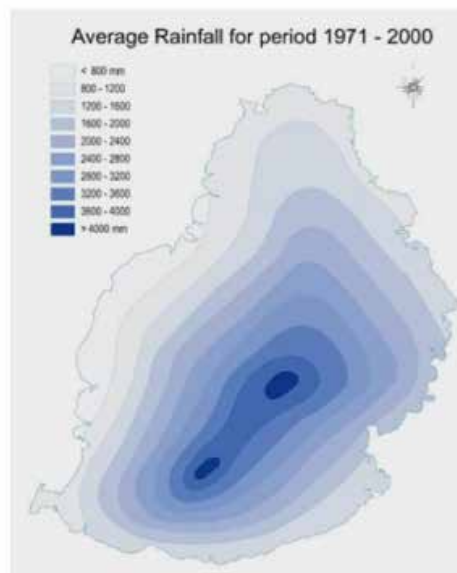
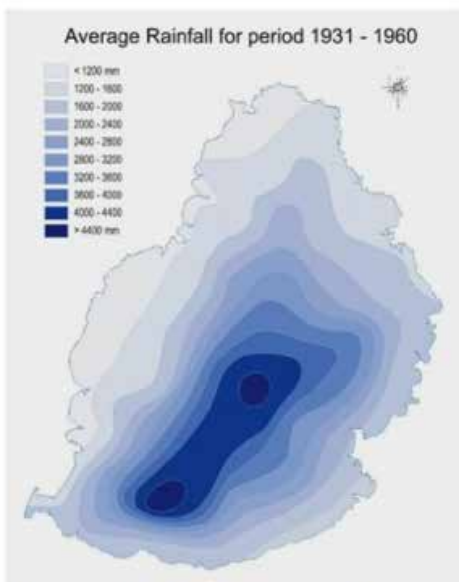
The Republic of Mauritius includes 3 major islands namely Mauritius, Rodrigues and Agalega.

	Mauritius Island	Rodrigues Island	Agalega Islands
Location	20.0° South latitude 57.3° East longitude	19.4° South latitude 63.3° East longitude	10.2° South latitude 56.3° East longitude
Area (km ²)	1865	108	24
Origin	Volcanic	Volcanic	Coral
Population (approx.)	1, 260,000	38,000	300

MAURITIUS

Mauritius is an island in the Indian Ocean, situated near the Tropic of Capricorn. The island enjoys a mild tropical climate. There are only two seasons: summer and winter.

The maps below show the annual distribution of rainfall in Mauritius for the periods 1931 – 1960 and 1971 – 2000.



(Source: Mauritius Meteorological Services)

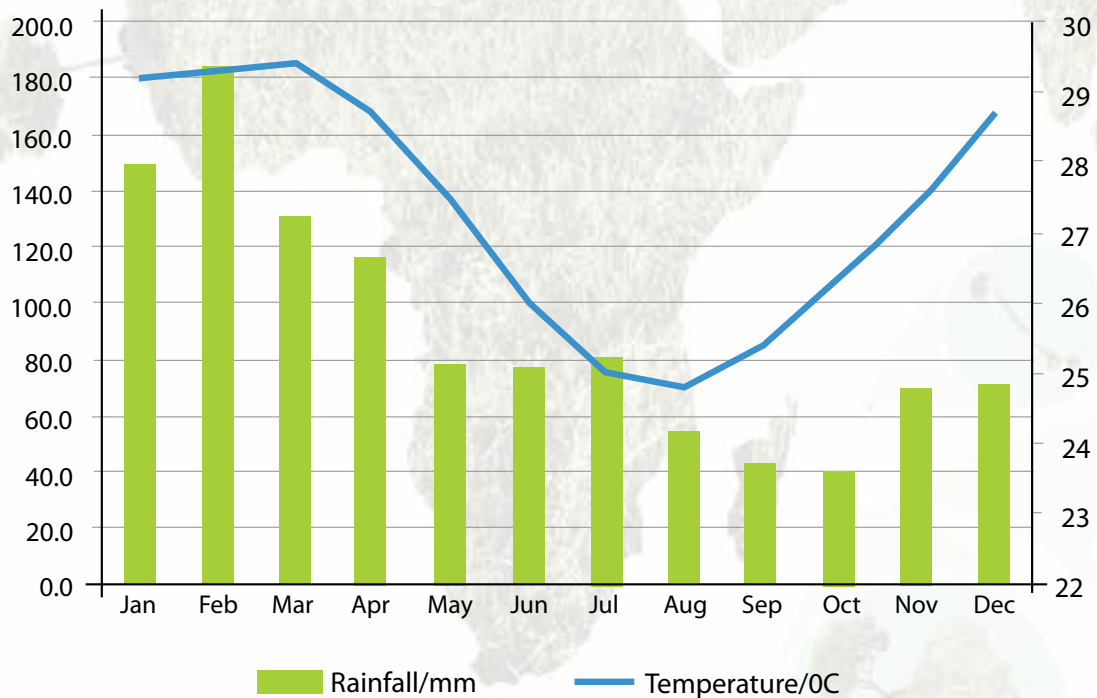
Did you know?
The amount of rainfall in Mauritius between 1971 and 2000 has decreased by 8% when compared to the period 1931 to 1960.

RODRIGUES

Rodrigues is an island located about 570 kilometres east-north-east of Mauritius. Like Mauritius, Rodrigues also has a mild tropical climate. However, due to its relief it gets less overall rainfall than Mauritius. Inhabitants in Rodrigues collect and use rain water as fresh water supply is scarce.



CLIMATE GRAPH FOR RODRIGUES FROM YEAR 1961 TO 2007

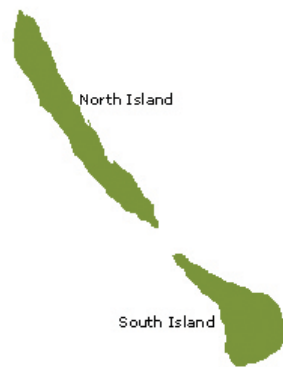




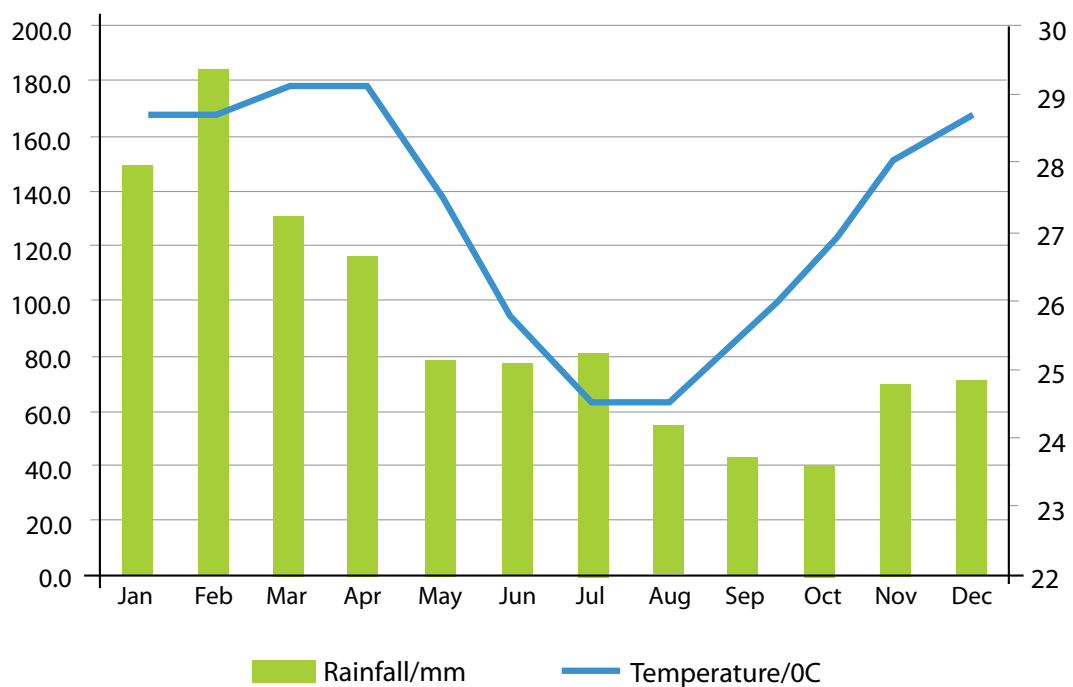
AGALEGA ISLANDS

Agalega islands lie approximately 1100 km to the north of Mauritius. They consist of two islands: the North Island which is about 12.5 km long and 1.5 km wide and South Island which is about 7 km long and 4.5 km wide. The climate is very hot and humid. These islands are low-lying with the maximum height reaching about 15 metres only.

Although they are very small, they have a major contribution in extending the Exclusive Economic Zone (EEZ) of the Republic of Mauritius. Moreover, they are situated on rich fishing banks. Apart from fishing the local population work on coconut plantations.

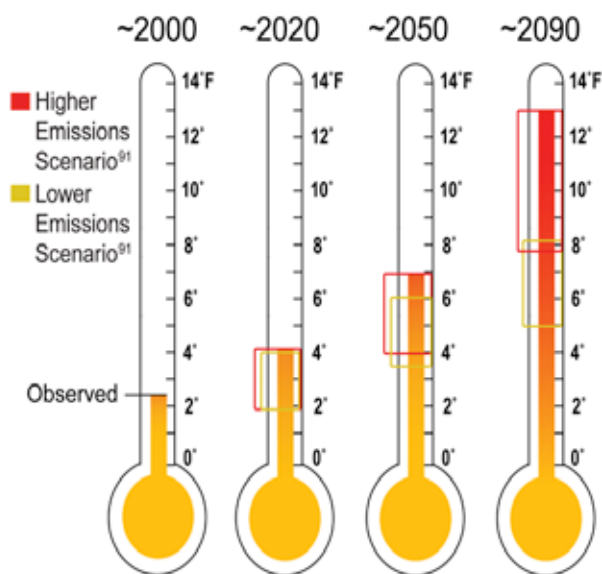
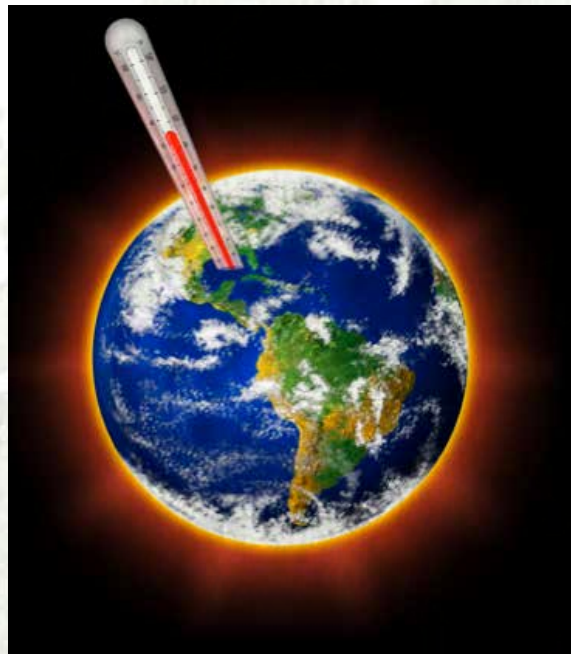


CLIMATE GRAPH FOR AGALEGA FROM YEAR 1961 TO 2007



OUR CHANGING CLIMATE

Over the past few years, meteorologists have observed that major changes are taking place in climatic conditions of Mauritius and worldwide; the temperature is rising and the rainfall pattern is changing. Our climate is undergoing changes as shown below.

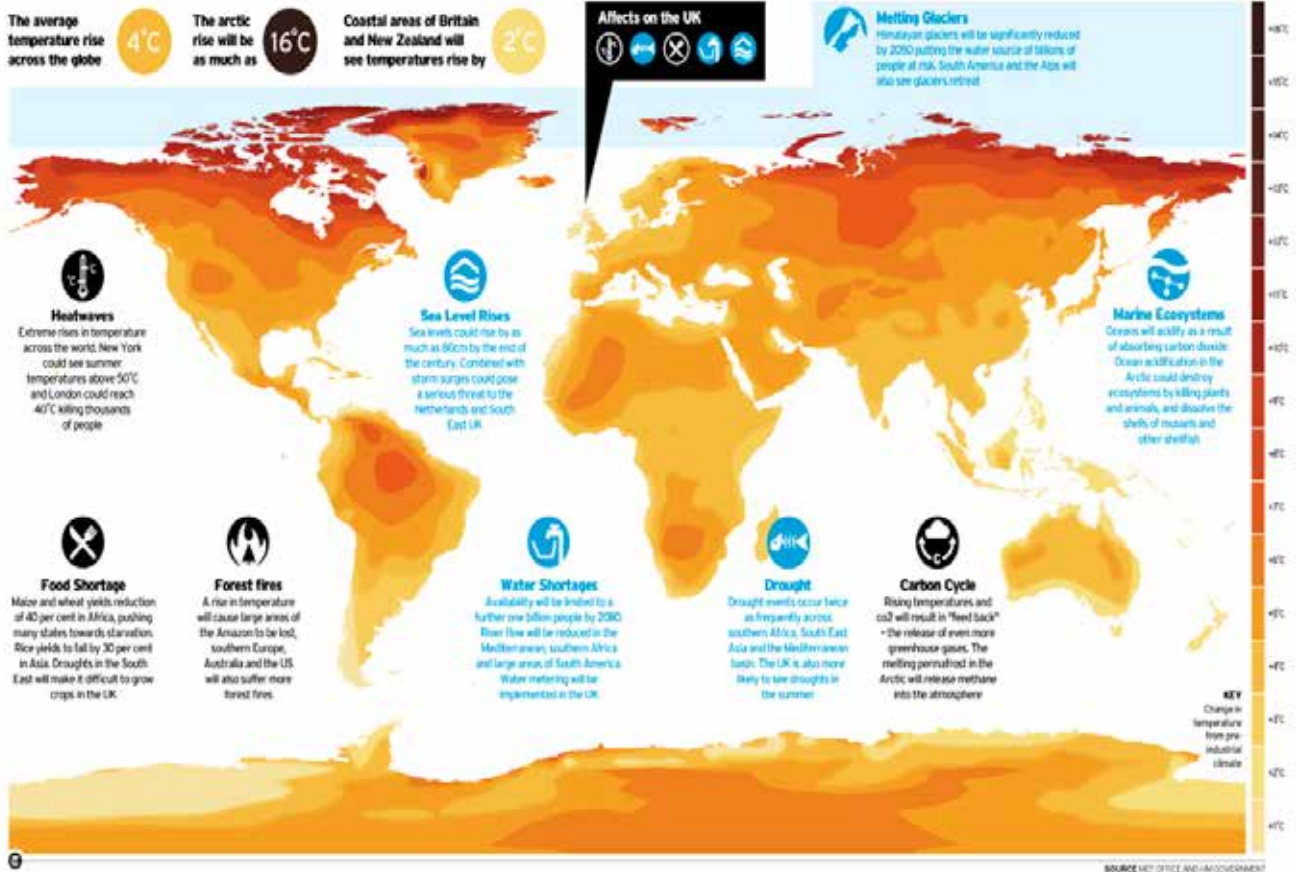




GLOBAL WARMING

The world is experiencing changes in its climate. The main change is warming of the planet, a phenomenon known as 'Global Warming'. Our islands are also affected by climate change due to 'Global Warming'.

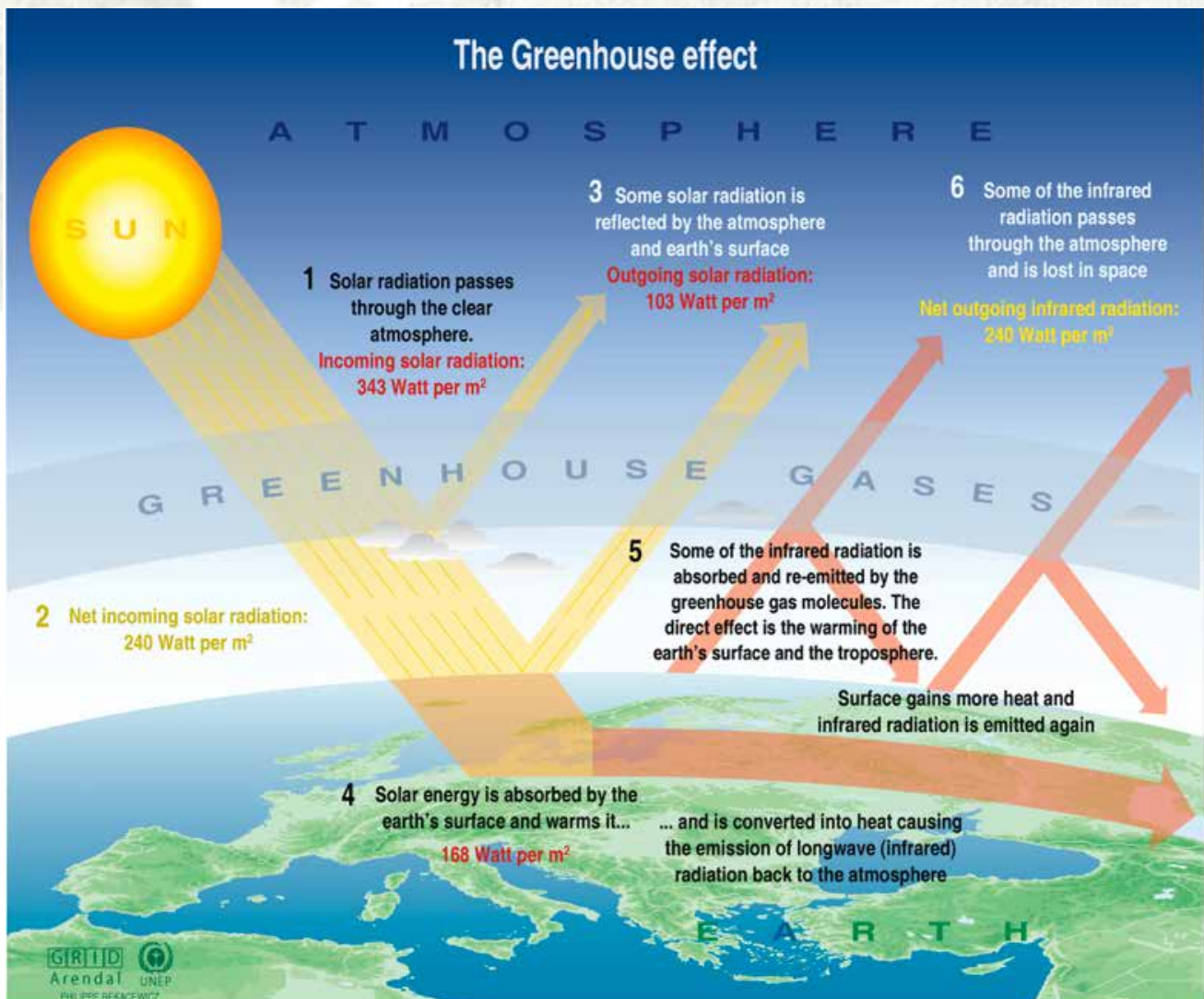
CLIMATE DESTABILISATION



GREENHOUSE EFFECT

The 'Greenhouse Effect' is a natural phenomenon which helps to keep the planet at a habitable temperature. Without the natural greenhouse effect, the Earth would be colder by about 30 degrees Celsius. This phenomenon is caused by the presence of greenhouse gases like carbon dioxide and methane in our atmosphere. These greenhouse gases help to trap outgoing solar heat and send it back to Earth, keeping the latter warm. While this may be beneficial, it can also have adverse effects. Later you will learn about the 'Greenhouse Effect' as a major cause of global warming.

Normal Greenhouse



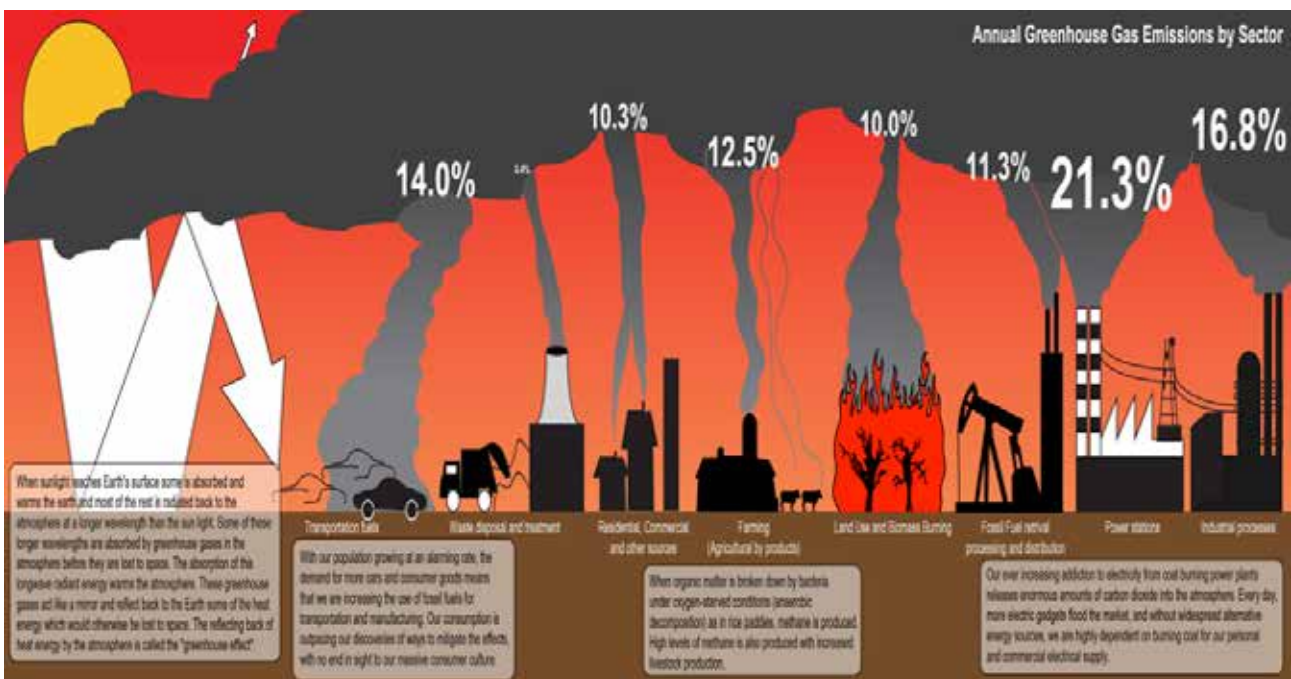
Sources: Okanagan university college in Canada, Department of geography, University of Oxford, school of geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996.



Industrialisation and the increase in greenhouse gases

There has been a considerable increase in the concentration of greenhouse gases in our atmosphere, leading to disastrous effects on the climate. This has been mainly due to human activities like industrialisation. When the greenhouse gases increase, more of the outgoing heat is trapped and sent back to Earth. This leads to the increase of the Earth's temperature and this phenomenon is known as 'Global Warming'.

Amplification of greenhouse effect



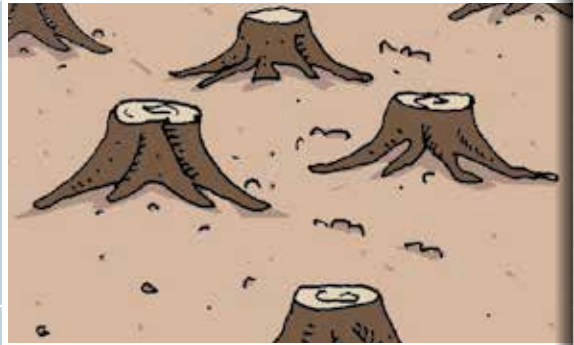
Task: Apart from industries, note down the other activities that are increasing greenhouse gases in our atmosphere.

Other activities that contribute to the increase in GHGs in the atmosphere

Which human activities contribute to GW?

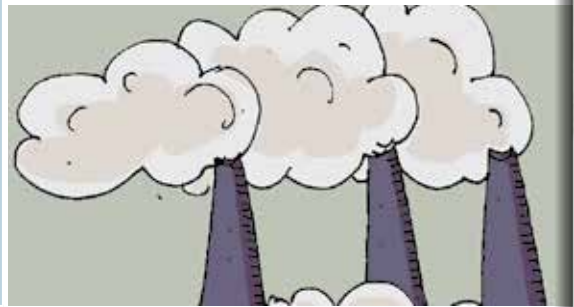
1. Deforestation

When trees are cut down, carbon dioxide is no longer absorbed by them, thus increasing its amount in the atmosphere to a dangerously high level.



2. Burning of fossil fuel

A lot of carbon dioxide is released in the atmosphere when fossil fuels are burnt for electricity generation, industrial activities and by motorised vehicles.



3. Waste

Organic waste decomposes to release methane in the atmosphere.



4. Agriculture and Farming

Methane is also released in livestock farming (rearing of cattle) and wet rice cultivation.




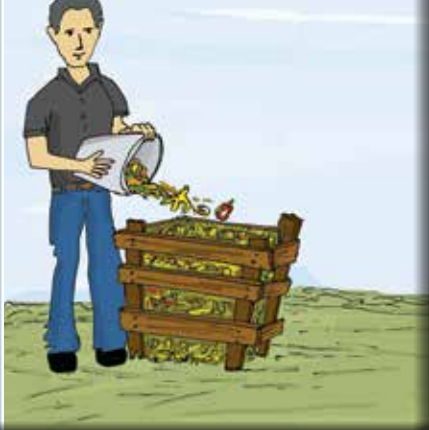




Impacts of climate change and global warming

Impact	Main Reason
1. The sea level is rising and is expected to cause floods in low lying coastal areas	It is due to the melting of ice caps and warming and 'expansion' of the oceans
2. Biodiversity is affected	Species cannot adapt to higher temperatures
3. There are higher incidences of crop failures and food shortages	There is variability in seasonal patterns that affects crops
4. There is a growing incidence of severe droughts and floods causing serious economic losses	It is due to extreme weather conditions caused by the GHGs among others
5. Health problems like malaria and food poisoning are becoming more common	Higher temperatures favour proliferation of mosquitoes and bacteria

What you can do to reduce GHGS and CC

THEME	GOOD HABITS	ILLUSTRATION
<p>Electricity</p> <p>Most of our electricity is produced by burning fossil fuels which release a huge amount of carbon dioxide in the atmosphere</p>	<p>Use electricity responsibly</p> <ol style="list-style-type: none"> 1. Turn off all lights when they are not in use 2. Avoid leaving appliances on standby mode if you will not be using them 3. Unplug chargers when not in use 4. Make use of dimmers 	
<p>Transport</p> <p>Most means of transport (land, air & sea) release a lot of carbon dioxide</p>	<p>Use public transport more often</p> <ol style="list-style-type: none"> 1. Use public transport when you can (bus, train) 2. Practice car pooling 3. Bike or walk short distances 	
<p>Cutting down of trees and deforestation</p> <p>Trees help to maintain a balance of CO₂ in the atmosphere</p>	<p>Planting of trees</p> <ol style="list-style-type: none"> 1. Plant as many trees as you can at home or school 2. Do not cut down trees unnecessarily 	
<p>Disposal of organic waste</p> <p>The decay of organic waste releases methane (GHG)</p>	<p>Composting organic waste in your garden at home and at school</p> <ol style="list-style-type: none"> 1. Proper composting of organic waste will release little or no methane gas in the atmosphere 2. Make your own compost at home from organic waste 3. Use compost rather than man-made fertilisers 	



Disaster Risk Reduction

Hazard is a phenomenon or a process, either natural or man-made, that can endanger a group of people, their belongings and their environment, if they do not take the necessary precautions.

There are different types of hazards. Some are natural while others are caused by human beings and these hazards may cause:

- * damage to the school and other buildings/infrastructure
- * suspension of various activities (e.g classes and activities at the school)
- *wounds, deaths and other injuries

Source/Origin of Hazards	Hazards
1. Hazards of natural origin	<ul style="list-style-type: none"> * floods *cyclones * Tidal waves
2, Hazards caused by human activity	<ul style="list-style-type: none"> *industrial or technological hazards (explosions, fires, toxic chemical spillage, collapse of buildings, water pollution) * wars
3. Hazards of socio-natural origin	<ul style="list-style-type: none"> * landslides * drought caused by deforestation

Disaster is a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Under certain conditions these hazards can turn into disasters. Among various natural hazards/ disaster, we can identify:

Earthquakes, earth tremors: Violent shaking or jolt of the Earth's surface due to movements originating deep underground, which can cause a lot of damage.

Volcanic eruptions: Explosions or emissions of lava, ashes and toxic gases from deep inside the earth, expelled through volcanoes.

Landslides, mudslides: Soil, rocks and debris that move suddenly or slowly down a slope. They mainly happen during rainy season or during times of seismic activity.

Tsunamis: Gigantic wave or series of waves that smash into the shore, caused by an earthquake, volcanic eruptions or landslides under the sea.

Hurricanes: Strong winds that start over the sea, rotating in big whirling circles, and bringing rain with them. They are also known as tropical cyclones.

Plagues: A widespread catastrophe that afflicts a whole town or a community caused, for instance, by huge numbers of insects or animals that destroy crops.

Droughts: A period of time (months or years) during which a part of the land suffers from lack of rain, causing severe damage to the soil, crops, animals, and even people, sometimes causing death.

Floods: Overflow of water that submerges land. The overflow of water can come from rivers and lakes and also from heavy rains.

Wildfires: Destructive fires in forests and other areas covered by vegetation. These fires can get out of control and easily spread over vast areas of land. **Tornadoes:** Violently rotating columns of air (often exceeding 300 k.p.h.), usually very destructive which spin along over the ground.

At other times, when specific situations cause lesser impact and the consequences are less significant and can be controlled, we are in a situation of an **emergency**. For e.g., a fire in an area where garbage is collected which we were able to control for a certain time.



What is a disaster?

A disaster takes place when the following three conditions occur at the same time:

- When people live in hazardous places like close to an active volcano, on unstable slopes where landslides are likely to happen, or close to rivers which could flood
- When a hazardous phenomenon occurs either naturally or by man-made activities
- When the phenomenon also causes a lot of damage to the habitat and human population. For example, torrential rain can cause flash floods and water accumulations in flood prone areas. They may also be responsible for the overflow of rivers which is likely to cause landslide in some areas.



Flooding of coastal road



Road damaged due to torrential rains

Vulnerability refers to exposure and fragility.

Vulnerability of people	<ul style="list-style-type: none"> * Boys, girls and young people without education, displaced by war or violence * people with special needs * people whose health has been affected (e.g from malnutrition)
Physical Vulnerability	<ul style="list-style-type: none"> * Blocked drains * lack of sewage systems * Badly constructed buildings or in poor condition
Economic vulnerability	<ul style="list-style-type: none"> * Lack of ability to earn an income
Social vulnerability	<ul style="list-style-type: none"> * lack of organizational level, violence, beliefs and customs

We can reduce vulnerability with the following actions:

- (i) Prevention measures
- (ii) mitigation measures

i.e Prevention measures + Mitigation measures = Reduction of Risk and Vulnerability



Risk: Probability of harmful consequences or expected losses (deaths, injuries, property, livelihoods, interruption of economic activity or environmental deterioration) as a result of interactions between natural or man-made induced disasters and conditions of vulnerability.

Prevention: Activities are developed to provide permanent protection and avoid harm to people as well as damage to possessions and the environment

Mitigation: measures taken in anticipation of a disaster with the aim to reduce or eliminate its impact on society and the environment. For e.g., mitigation measures for climate change is about reducing GHGs and its impacts on society and the environment.

Preparation: Actions which are carried out before emergencies or disasters occur, with the aim of strengthening community response capacity

Response: Action to alleviate suffering or save human lives

Capacity: combination of all strengths and resources available within a community, society or organization which can reduce the level of risk or the effects of an event or disaster.

Our capacities or strengths are related to:

- * the knowledge we have about disasters
- * the resources available
- * the organization of the educational community
(e.g., emergency committee, plans etc)
- * the capacity to respond and recover easily

Disaster risk reduction (DRR): The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness and response for adverse event.

Link between climate change and natural hazards and disasters

Climate change is expected to increase the frequency and intensity of climate-related hazards such as floods, droughts and heat waves. When communities are constantly exposed to climate change related consequences (for e.g., reduced availability of water and food, and loss of biodiversity and natural assets), their capacity to cope with the situation may be diminished thus increasing their vulnerability.

Disaster risks multiply with the intensity of the hazard and with social and environmental vulnerabilities of the society and the environment. In turn, they may be reduced by society's ability to cope with the hazard, as shown in the following equation::

$$\text{Disaster risk} = \frac{\text{Natural hazard} \times \text{Vulnerability}}{\text{Capacity of societal system}}$$

Disaster Risk Reduction Education

Education prepares to better cope with disasters and also, in some cases, to prevent them from happening. Many hazards only become disasters due to human behaviour or as a result of a lack of preparedness.

What people know has therefore often been demonstrated to be more important than what people have when it comes to avoiding or limiting the harmful consequences of hazards. Hence, quality education before, during, and after disasters can help build individual and community resilience to future climate change-induced disasters.

It can reduce vulnerabilities to hazards by equipping learners and their communities with life-saving knowledge and helping them to develop positive coping mechanisms. Education can be instrumental in building local capacity to cope after disasters and in helping learners and the community to return to a normal life.

Education facilities may in a similar way represent a safe place for children in an insecure environment. Education thus represents a critical component of Disaster Risk Reduction (DRR) responses, which help communities and individuals prepare for disasters and prevent and mitigate their vulnerability to risk.



There are a range of DRR activities that education planners and practitioners can design and implement at national, district or classroom level to help ensure educational continuity, and to strengthen education systems and learning on DRR.

Successful DRR and education programmes often have three key components:

- (1) safe school construction
- (2) disaster prevention education, including curriculum development, the integration of DRR awareness and knowledge into the provision of education; and
- (3). Integration of DRR into policy and planning

Preparing a School Emergency Preparedness Plan

The components of a school DRR emergency and preparedness plan are available in UNISDR's Guidance Notes on School Emergency and Disaster Preparedness. (http://www.unisdr.org/preventionweb/files/15655_1msshguidenotesprefinal03131101.pdf).

Emergency and Disaster Preparedness is one important component of Disaster Risk Reduction. It consists of actions intended to increase the coping capacity of people and make them more resilient to disasters.

School preparedness requires undertaking the following important actions:

- (1) Create a school emergency and disaster preparedness committee,
- (2) Design a school emergency and disaster preparedness plan,
- (3) Know the responsibilities of stakeholders, and
- (4) Conduct emergency drills and exercises.

Disaster Kit Components

The UNISDR Guidance on School Emergency and Disaster Preparedness also provides a suggestion for a 'first aid kit'. It cites an example from the American Red Cross for first aid kits for a family of

four that includes:

- 2 absorbent compress dressings (5 x 9 inches)
- 25 adhesive bandages (assorted sizes)
- 1 adhesive cloth tape (10 yards x 1 inch)
- 5 antibiotic ointment packets (approximately 1 gram)
- 5 antiseptic wipe packets
- 2 packets of aspirin (81 mg each)
- 1 blanket (space blanket)
- 1 breathing barrier (with one-way valve)
- 1 instant cold compress
- 2 pair of nonlatex gloves (size: large)
- 2 hydrocortisone ointment packets (approximately 1 gram each)
- Scissors
- 1 roller bandage (3 inches wide)
- 1 roller bandage (4 inches wide)
- 5 sterile gauze pads (3 x 3 inches)
- 5 sterile gauze pads (4 x 4 inches)
- Oral thermometer (non-mercury/nonglass)
- 2 triangular bandages
- Tweezers
- First aid instruction booklet

<http://readyclassroom.discoveryeducation.com/media/pdfs/SCHOOL-EMERGENCY-SUPPLIESGO-KIT.pdf>



Unit II

Learning Materials

Unit II is built around the subject areas that pupils are already familiar with in primary schools, namely, English, French, History & Geography, Science as well as the Arts, with various learning activities on CC and DRR. Each learning activity is meant to help teachers to engage pupils to try out new ideas, reflect, and apply critical judgment to what is being studied. These activities are meant to develop an awareness and also help teachers and pupils to make decisions, as agents guarding against hazards of CC.

Through these activities, teachers are expected to guide, motivate, provoke, ask questions, discuss, appraise pupils' progress, provide enrichment activity and enforce the learning with appropriate remedial measures. Teachers will create the opportunity to allow children to freely express themselves, to identify learner misconceptions and clear them up as early as possible.

The overall aim of these learning activities is to help teachers (pre-service and in-service) gain confidence in educating pupils about the CC and DRR in primary school subjects and to see the relevance of the same. Above all, we want to help teachers address issues of CC and DRR without burdening the curriculum, as these learning materials integrate smoothly into what educators are already teaching.



ACTIVITY 1

Develop understanding of Climate Change through role play (50 mins)

Subject Area: Languages (English, French, Oriental or Kreol Morisien)

Target groups: Standards IV, V & VI

Materials needed: Climate Change Education - MIE AAPCC Pack (Cartoon, Flyer, Fact Sheet, DVD, ...)

Aim: To develop an awareness of problems related to Climate Change through role play

Learning Outcomes:

At the end of this activity, pupils will be able to

1. extract useful information from a set of reading materials
2. prepare and present a role play
3. reinforce skills of communication by participating in the role play

Procedure:

Step One: Classroom discussion – Identifying the problems

Using the resources from the Climate Change Education – AAPCC/MIE Pack:-

- pupils discuss and list the problems that our islands may face in the future due to Climate Change
- pupils make a selection of five issues which you consider the most significant ones

Step two: Working in groups – write a scenario for the role play based on the above selected theme

- Each group thinks of a theme for its role play
- After choosing, each group works on its role play (character, dialogue, scene etc...)
- Pupils are encouraged by teachers to be creative in their task

Step three: Staging the role play - 5 minutes per group for enacting the scene(s)

The classroom is transformed into a mini theatre; each group performs in turn in front of the class. At the end of each presentation, pupils give feedback and their comments about what they have grasped and how the scene(s) could be displayed differently.

Role of teacher:

The teacher explains the key terms and other themes that may be partially or wrongly interpreted by pupils.

Some ideas for a probable scenario:

1. **You are a group of fishermen discussing how the sea coast and lagoon have been damaged**
 - *The sea level is rising in a coastal (fishermen) village*
 - *It is gradually destroying the beach and becoming a risk for the coast and the houses closeby*
 - *You are trying to find out why this problem, which did not exist in the past, is occurring now*

2. **You are a group of Clown Fish and you are noticing the following**
 - *Your natural habitat, the reef, is facing degradation*
 - *Human beings are destroying the reef through irresponsible actions*
 - *You are afraid of the future of your baby Clown Fish and fear extinction of your species*

3. **A flood has suddenly destroyed many farmers' crops and they are discussing why**
 - *You are worried about regular flooding of your fields*
 - *This did not happen in the past but is becoming more regular now*
 - *This is preventing you from earning a decent living*
 - *You are discussing why the situation has become like this and what can be done*



ACTIVITY 2

Investigating Climate Change through Web quest (50 mins)

Resource: The U.K. National History Museum Web quest

The U.K. National History Museum provides very interesting interactive and self-study opportunities through Web-quest. Here is how you can encourage your students to use it at school, and also at home on their own.

Subject Area: Information and Communications Technology

Target Group: Standards IV, V and VI

Materials needed: PCs with Internet connection

Aim: To develop learners' skills in Web Quest

Learning Outcomes:

At the end of this activity, pupils will be able to:

1. demonstrate an understanding of what is Web Quest
2. use Web Quest to search for information related to current affairs
3. reinforce their ICT skills and ability to use internet as a tool for learning

Procedure:

This activity is carried out in the computer room, Mediateque or in the Sankoré classroom. In case this is not possible, then the teacher can use the information gathered from the site to prepare activities for the class.

Teacher gives instructions to pupils on how they will proceed. Pupils, working in pairs or groups of 3, spend around 25 minutes through the Web Quest, on their own. Teacher may decide to give a slow demo if the learners do not possess appropriate ICT skills.

Step 1

Open 'Windows Explorer' Firefox, Google or any other browser

Insert the following Web address:

<http://www.nhm.ac.uk/education/online-resources/webquests/>

The National History Museum Web Quest page will open. You will find the following page:

titeuf PAR ZEP
mes
meilleurs copains

La
prise de
conscience





Step 2

- in pairs pupils read through the extract of the cartoon and gather information provided
- each pair writes a dialogue on the information gathered
- the dialogue is then presented by each pair of pupils

Teacher provides feedback on the activity and summarises the lesson

ACTIVITY 7

Understanding Greenhouse Effect and Global Warming

Subject Area: Science

Target Group: Standard VI

Materials needed: jars with lids, thermometers, pupil's watches

Aim: To help pupils understand what the Greenhouse Effect is and how it is responsible for global warming.

Learning Outcomes:

At the end of this activity, pupils will be able to:

1. demonstrate their understanding of the Greenhouse Effect
2. read and record temperature from a thermometer
3. explain the meaning of global warming
5. state that greenhouse effect causes a rise in global temperature
6. state that rise in global temperature is causing changes in our climate

Instructions:

Step One:

- two jars are placed in a location where there is direct sunlight
- a thermometer is placed in each jar
- one of the jars is covered with a lid, the other one is left uncovered

Step two:

- a table with headings of temperature in the two jars and time is drawn
- after every 30 minutes pupils are required to observe and record the temperature of air in the two jars on the table
- this is done for up to 3 hours

Step three

- at the end of the 3 hours, the temperatures recorded in the two jars are compared
- pupils discuss about the temperatures in the two jars



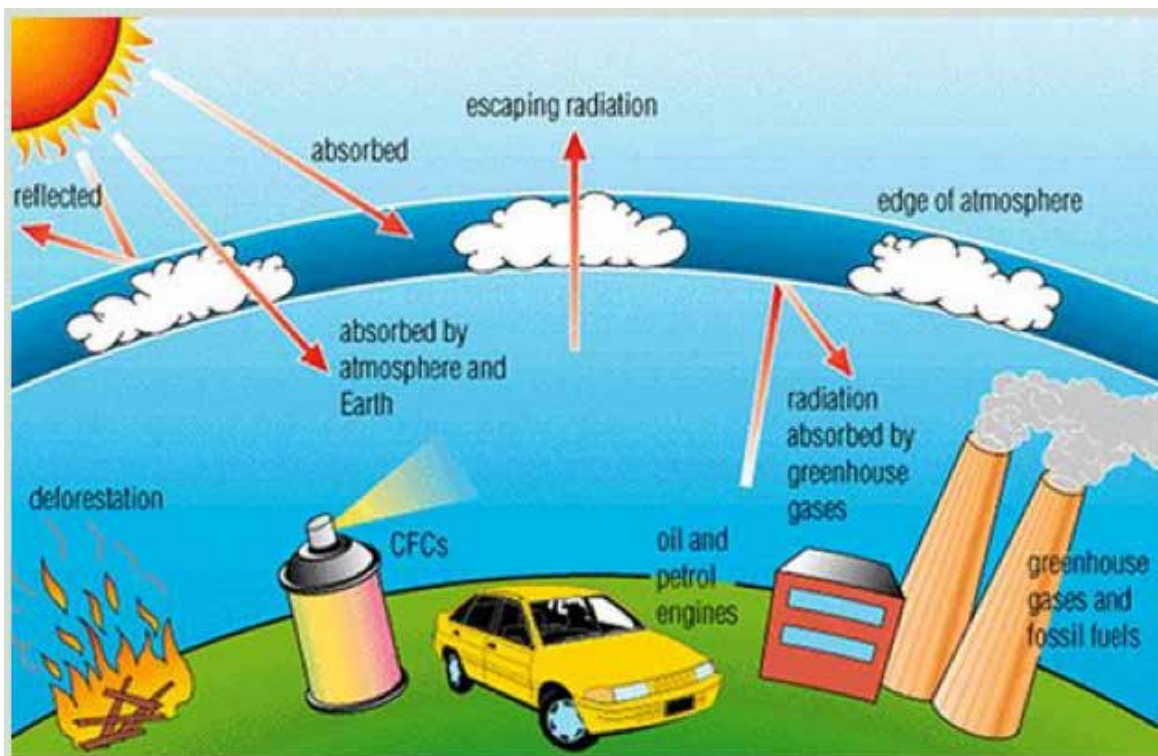
How does this explain Global Warming?

Teacher explains that:

- the lid of the covered jar prevents the heat from escaping into the atmosphere
- the increase in air temperature is due to the trapped heat in the jar

On a much larger scale, the following is happening to the Earth:

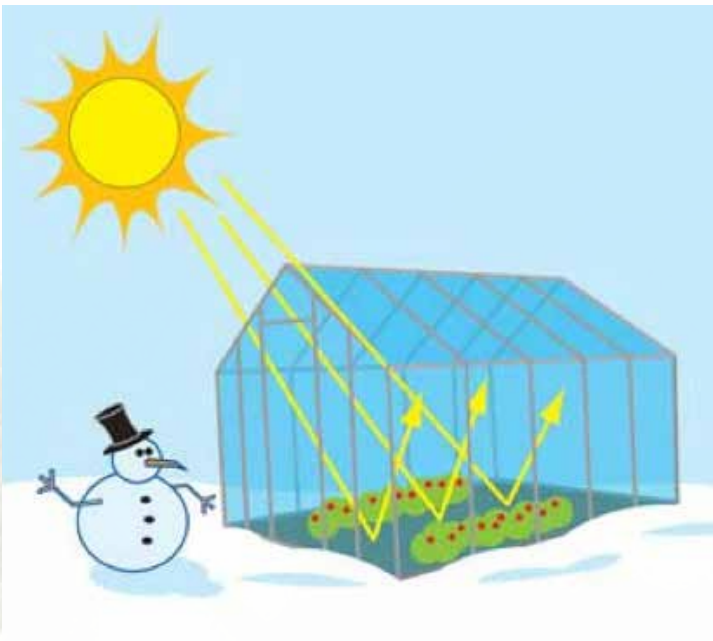
- energy from the sun strikes the Earth's atmosphere
- some of it bounces back from the atmosphere into space
- but most energy passes through the atmosphere to warm the surface of the Earth
- once the Earth has been warmed, excess heat is radiated back into the environment
- some of the heat is trapped in certain gases in Earth's atmosphere
- these gases accumulate in the atmosphere and keep the heat inside the Earth's atmosphere
- as a result, the atmosphere gets warmer (this is called the **Green House Effect**)



Pupils are made to discuss in groups about what they see and read in the above diagram. They identify the activities that release harmful gases and lead to global warming and changes in our climate. Pupils are also required to state whether all these activities are taking place in Mauritius, Rodrigues or Agalega.

Why is the phenomenon called the Green House Effect?

Observe the diagram given below.



Teacher explains that certain plants have to be protected and kept at a slightly higher temperature for their survival. This is done using a glass chamber as shown above. It is called a **Green House**. The temperature inside the Green House is normally higher than outside. This additional heating of the chamber is called the **Green House Effect** (GHE).



Activity 8

Identifying reasons for increasing Global Warming today

Subject area: Arts , Languages

Target Groups: Standards V & VI

Materials needed: A3 size paper, paper glue, pictures on themes like pollution, global warming, climate change, unpolluted environment, Bristol paper

Aim: To develop writing and speaking skills
(The activity can be carried out in two to three sessions of 40 minutes)

Learning Outcomes:

At the end of this activity students should be able to:

- describe pictures related to a specific theme
- use key vocabulary in grammatically correct sentences
- write a coherent paragraph
- edit and proof read a paragraph

Procedure:

Step 1

- teacher tell pupils that this activity is about describing pictures that relate to certain themes
- pupils are asked to describe orally the images that come to their mind for the following suggested themes:
 - > Polluted air
 - > Unpolluted environment
 - > A green planet
- teacher listens to all suggestions without judging them

Step 2

- the class is divided into groups of 4 or 5
- each group receives a picture
- a picture is taken and stuck on an A3 size paper leaving enough space to write around it
- each group has 5 minutes to write some words/phrases related to the picture; expected words/phrases: green field, blue sky, pure air, fresh air, beautiful, harmful gases, pollution, ...
- pupils are encouraged to think beyond the diagrams and texts
- after the 5 minutes, the pictures are taken and redistributed to other groups to add more words/phrases
- at the end all groups would have contributed to write key vocabulary for each picture

The following pictures are used to conduct the activity:



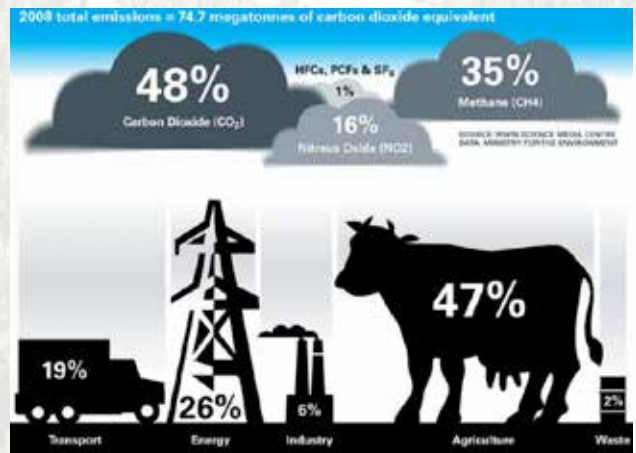
Fumes from factories



Overbreeding of cows



Fume for a factory



Gasses emitted from various sources



A green field



Nuclear plants



A Gas platform at sea



A bicycle



An airplane



Panels captors of solar energy



Cars on a very crowded highway



- teacher carries a whole class discussion on the words/phrases related to the pictures stated by pupils;
- any spelling mistakes or inappropriate words are highlighted;
- after the sub-activity on vocabulary, teacher gives a diagram and its set of vocabulary to each group of pupils, the latter are required to read these words/phrases and use several of them to write 5 sentences

Step 3

- teacher uses these sentences to initiate pupils in the writing of paragraphs, taking care of the order in which the sentences should appear
- pupils write their final draft on Bristol paper and stick their picture alongside
- other pupils should get opportunity to read from the chart paper of each group and relate to the picture stuck alongside

Activity 9

Has climate change affected people I know

Subject Area: History & Geography

Suggested Class: Standard VI

Materials needed: a set of questions prepared on “Climate Change”

Aim: To raise awareness among pupils that climate change is already taking place at the local level

Learning outcomes:

At the end of this activity, students should be able to:

- conduct an interview with a set prepared questions
- deduce from information collected from elderly people that climate change is taking place
- write a brief summary of the important points raised during the interview

Instructions:

- pupils discuss in groups to prepare a set of questions on climate change, with the help of teacher
- they then conduct an interview with elders, relatives and friends on whether changes in the climate and the environment have been noticed

Suggested questions:

Please tell us about changes that you have noticed in climate and our environment in the past years (ensure that there are questions about cold/hot weather, rain, wind, cyclones, beaches, droughts and floods)

1. many years back how were the summer and the winter, just like today or different?
2. what changes have you noticed in the Mauritian beaches; the sand, beach, trees, and buildings?
3. what about rainfall; has it increased, decreased or remained the same?
4. was the climate colder, hotter or the same?
5. were floods commons in the past?
6. how were the cyclones in the past; same as now or different?

pupils are asked to write their answers on a chart and share their answers to the whole class;

it is preferable to write separately on each theme such as changes observed in:

- winter long ago and now
- climate long ago and now
- beaches long ago and now
- rainfall long ago and now

other themes that they have obtained information about



Activity 10

Crossword game

Target Group: Standard IV

Aim: To consolidate pupils' knowledge of vocabulary related to a specific theme

Materials needed: a crossword game

Learning Outcomes:

At the end of the activity, students will be able

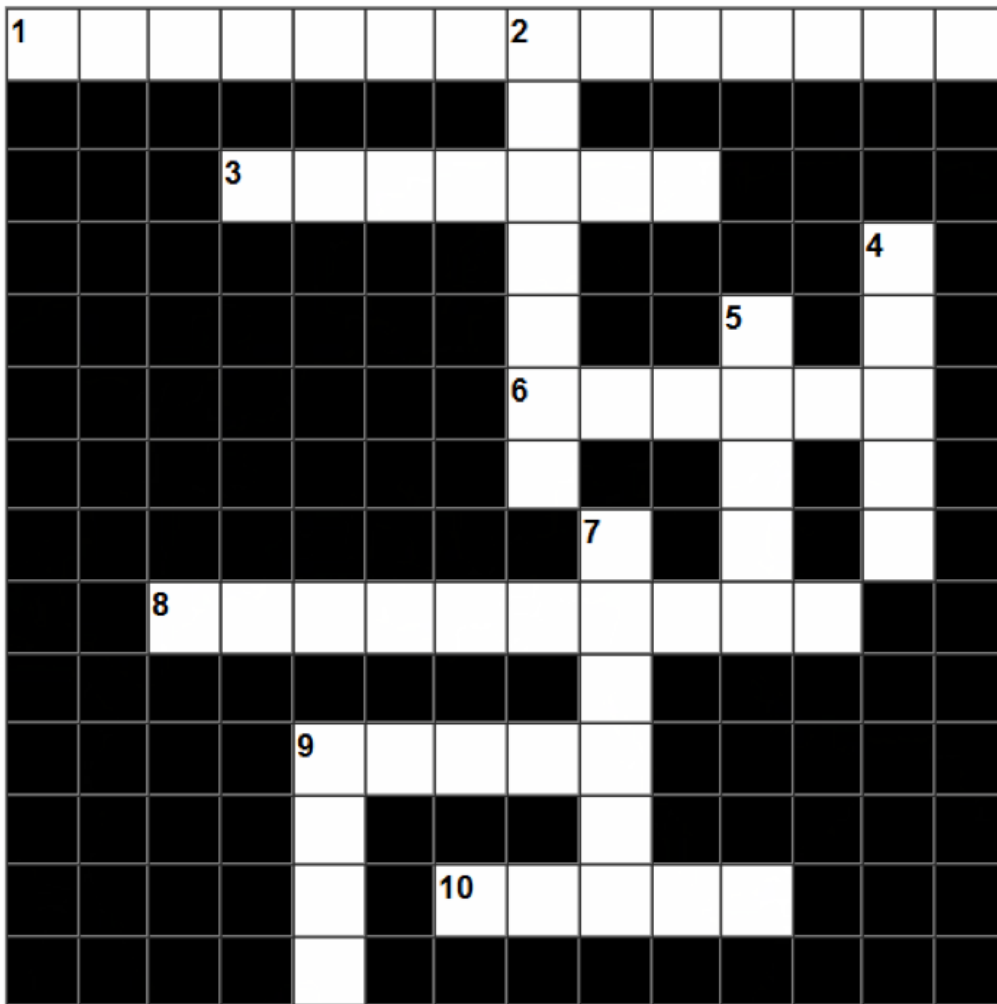
- to identify appropriate vocabulary by using contextual clues
- to use appropriate words to fill a crossword related to a specific theme

Procedures

1. teacher explains the ideas about a crossword, then provides one example to pupils for a start
2. pupils are set to work in groups of 3-4 so that they consult, agree, and then write words needed
3. 25 minutes are allocated for the completion of the task
4. the task is done orally first, by inviting each group of pupils to take turn to answer (feedback is given)
5. pupils complete one crossword and put it up in the class; this should also include the instructions on the questions for 'Across' and 'Down' words; it is expected that pupils learn the words and techniques of cross words by seeing them.

The blank cross word that is to be filled, is shown in the following page.

Crossword



Across:

- 1 A dangerous gas emitted by cars C_____ - D_____
- 3 Dramatic climatic condition experienced in summer
- 6 Cars using both petrol and solar power are call _____ cars
- 8 Special houses for planting in cold climate
- 9 To obtain energy from the sea we can use sea _____
- 10 Energy from sun is called _____ energy.

Down:

- 2 Very dry weather
- 4 Also used for water- H_ _ _ O
- 5 Rain fall depends a lot on _____
- 7 Petrol is also called _____ fuel
- 9 Turbines powered by _____ energy can be used to produce clean fuel.



ACTIVITY 11

Data on climate change

Subject Area: Mathematics

Target group: Standard VI

Materials needed: calculator, compass, protractor

Aim: To teach learners to construct a pie chart from data given in the form of a table

Learning Outcomes:

At the end of this activity, students should be able to:

- read and interpret data given in a table
- use data provided to construct a pie chart

Instructions

- pupils observe some facts provided on Mauritius

Emission of Carbon Dioxide by sector (Mauritius, 2010)

Emissions from Exhausts of vehicles:	25%
Household activities:	4%
Manufacture:	10%
Energy Industry:	60%
Others	1%

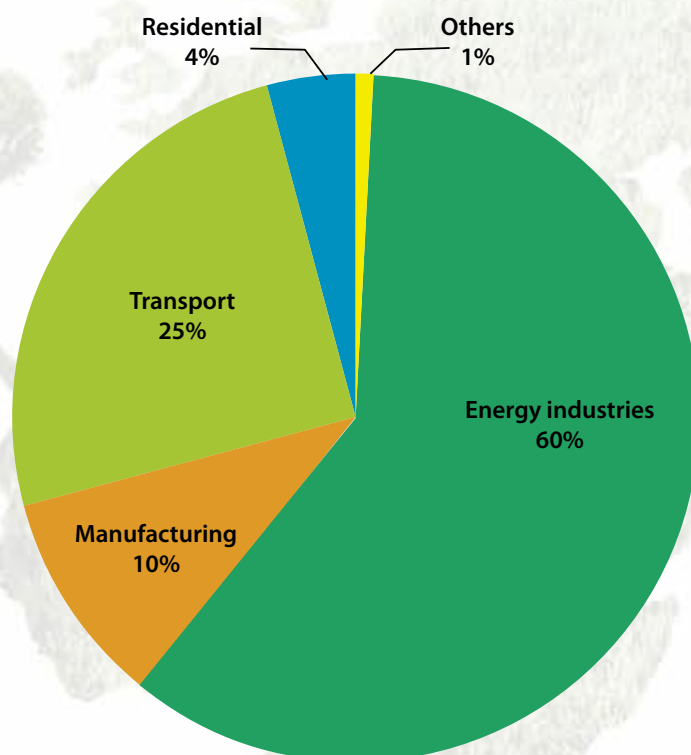
- pupils convert these % into angles that will help them to construct the pie chart
- pupils use these angles to produce a pie chart

Follow up questions from the pie chart constructed:

- according to the figures presented, which sector emits the most of carbon dioxide?
- what may happen if we continue to emit so much carbon dioxide in our atmosphere?
- how can we limit the amount of carbon dioxide emission in our atmosphere?

Teachers may use the following pie chart which reflects the values given above.

TOTAL CO₂ EMISSIONS BY SECTOR



CO₂ Emissions by Sector for the year 2010 (CSO, 2010)



ACTIVITY 12

Making decorative items with scrap materials (pencil holder)

Subject Area: The Arts

Target Group: Standards V & VI

Materials needed: empty cans (from any used canned food), old clothes or fabric scraps (from dressmakers, clothing & textiles industries), fabric glue, scissors, old pamphlets/used wrapping paper, old calendars

Duration: 50 - 60 minutes

Focus: re-use of waste found in our environment

Aim: to develop creativity through the making of a pencil holder using reusable materials

Learning Outcomes:

At the end of the lesson, students should be able to:

- explain how certain waste can be reused
- list decorative items that could be created using textile and domestic waste
- demonstrate creativity through the making of a pencil holder using textile waste

Procedure:

1. Teacher conducts a brainstorming on various solid wastes that are generated at home. Use a mind map to write down pupils' responses in different categories (metal, textiles, plastic, paper, bottles, vegetable peels, others)
2. Teacher instructs pupils to classify these wastes into whether they are biodegradable or not. Questions are also asked on:
 - different steps taken to manage waste at home/school
 - how we can reuse some of these waste
 - examples of how we can reuse textile and domestic waste to make decorative items
3. Teacher discusses with pupils about the 'reuse' concept, highlighting that if less waste goes to the landfills, less resources and energy will be used. Therefore, less greenhouse gases will be emitted thus reducing the effects of climate change

4. Using a mind map, teacher explains how waste can be reused (emphasis on empty cans, textile wastes and domestic wastes)
5. Teacher gives examples of decorative items that may be created using textile waste e.g. pencil holder, wall hanger, floral arrangement, bouquet, greeting card, bookmark, bag, table mat, poster, etc



6. Teacher organises pupils into small groups and encourages them to share the textile wastes/scrab materials provided by teacher or brought from home
7. Teacher explains how pupils can create a pencil holder using the resources

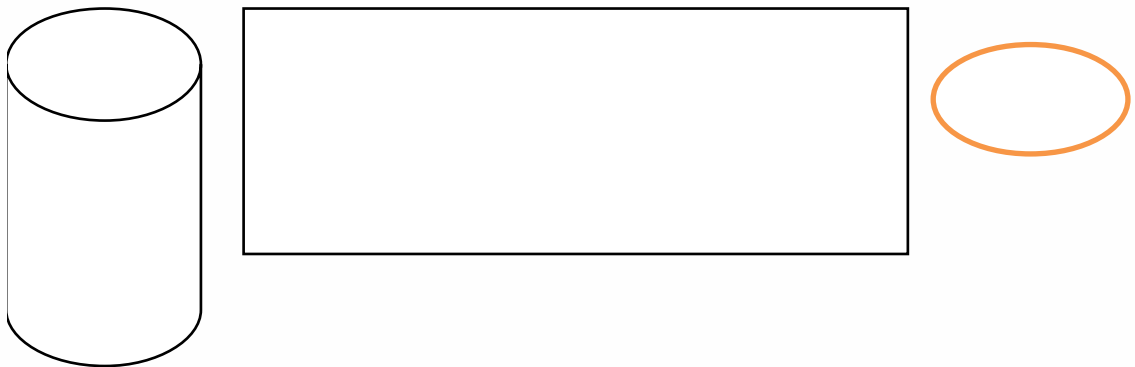


8. Teacher asks pupils to decorate the outside surface of their empty can using scrap textile materials, old calendars with attractive and colourful pictures, woollen yarn, buttons, lace edging, etc.
9. Pupils cover the inner surface of the can using wrapping paper or old pamphlets:
 - pupils measure the perimeter of the can, cut out a rectangular shape from the old calendar as shown in the next page and stick it to the inner surface of the can



- they place the base of the can on paper and draw around it with a pencil
- pupils cut out the circular shape and stick it to the inner surface of the base of the can
- similarly, pupils cut a circular shape on fabric and stick it to the outer surface of the base of the can

Teacher supervises and guides pupils, encouraging them to show creativity and originality in the finished work



10. When pupils complete their pencil holder, teacher displays all pupils' works, giving opportunity to pupils to see their peers' work.
11. Teacher concludes the lesson by emphasising on the importance of reusing waste. S/he focusses on the fact that instead of throwing out waste, we can reuse it to create useful decorative items and also help in reducing the effects of climate change.



Follow-up activity

Teacher can carry out similar activities where pupils work on other decorative items e.g., a floral arrangement. The floral arrangement can be used to decorate the classroom or displayed outside the classroom.

Group 1: pupils cut fabric scraps in rectangular shapes and form bows by pressing with fingers and add some glue.

Group 2: pupils decorate a large can as in the above activity to hold the floral arrangement.

All pupils then decorate the large dried branches which they have put in the large can (use pebbles to hold the branch(es) inside the decorated can), either by sticking the bows or tying the bows with woollen yarn.



Floral arrangement



Other decorative items are shown for further activities



Decorated bag used in rice packaging



Wall hangers

ACTIVITY 13

The Art of Making Handmade Paper

Subject Area: The Arts

Target Group: Standards V & VI

Materials needed: Old newspapers and magazines, electric blender, jar/measuring cup, large container, wire screen (wire mesh), water, corn starch, stirrer, wax paper, rolling pin, wash basins, drying area

Aim: To teach pupils to prepare handmade recycled paper

Objectives:

At the end of the lesson, pupils should be able to:

- identify the raw materials used to make paper
- demonstrate the ability to reuse and recycle waste paper
- use appropriate techniques to prepare recycled paper manually
- explain the importance of reusing & recycling paper

Procedure:

1. pupils organise themselves into groups of 5

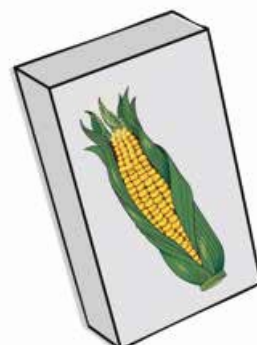




2. pupils work in groups to tear all newspapers and magazines into pieces



3. the pieces of paper are kept in a large container which is filled with enough water to cover the paper. The pieces of paper are soaked for 10 - 15 minutes
4. meanwhile, the teacher plays the following clip related to producing home made paper:
<http://www.pioneerthinking.com/crafts/crafts-basics/makingpaper.html>
Then teacher discusses the steps in paper making
5. pupils mix 1/4 cup of water with 1/8 cup of corn starch ('la poudre cange'). They stir to dissolve the corn starch
6. the soaked paper is removed from the container and pressed to remove the excess water
7. under supervision of teacher, pupils add the soaked paper and corn starch in a blender. (Safety precautions: Ensure your hands are dry and, the cover of the blender is well fixed.) If a blender is not available, a pestle and mortar can be used



8. pupils blend until a pulp is obtained
9. pupils pour the pulp onto the wire screen and spread the pulp into a thin layer
 - pupils may add some dried flowers or leaves to obtain decorative effect
 - excess water is squeezed out using a rolling pin





10. the rolled paper sheets are left to dry for a week.



Follow up activity

The following week pupils will be given a painting theme based on 'Maurice - Ile Durable Project' which they will have to complete on their handmade recycled paper.

Teachers initiates discussions with pupils on the following:

- quantity of paper used by each one of us
- origin of paper
- can we continue to use paper at present rate, justify each answer
- why should we reduce cutting down trees to make paper
- why do we need to recycle and use recycled paper rather than buy new ones everytime



Appendix 1: Quiz Activity

This part provides a series of questions that may be used for quiz activity in your class or school.

What is the name given to the giant waves which are formed when a strong earthquake occurs in the sea?

What do factories place in their chimneys to reduce air pollution?

Name the place where there is nature reserve for tortoise in Rodrigues.

Name the forest which has experienced large scale deforestation in South America.

How is the recent rise in the Earth's temperature and caused by human activities called?

Name the graph which gives us an indication of the monthly temperature and rainfall of a place?

What is the name given to the big block of ice floating in the cold oceans and seas?

By which name is a tropical cyclone known in the U.S.A ?

Which group of islands found in the Indian Ocean, whose capital is Male, is the most threatened by a rise in sea level?

Which animal is the most threatened one due to global warming in the polar regions of Alaska, Greenland and Russia?

How do we call the period when the temperature of the earth was very low?

How is a scientist who studies weather called?

In the water cycle system, what name is given to the process during which water vapour turns into tiny water droplets?

At which temperature does water freeze?

Which season comes after summer and before winter in European countries?

Name the reservoir found in the north of Mauritius

What makes up 70% of the area of the Earth's surface?

Name two non-renewable source of energy which is used in Mauritius

Which activity has been banned so as to protect our beaches ?

Name the sanitary landfill located in the district of Grand Port.

Which cyclone caused much damage to Mauritius in February 1994?

Name the instrument used to measure air pressure

To which group of animals does the endangered leatherback turtle belong?



In 2011, which country suffered terrible loss after the passage of a tsunami?

Name the prevailing winds that blow almost throughout the year in Mauritius.

How is the central part of a tropical cyclone called?

When is the World Environmental Day observed? give date and month

Which ecosystem suffers from bleaching because of global warming?

Name the harmful greenhouse gas produce by the digestive system of ruminants; cattle.

Name the former vice president of the USA who received the Nobel prize for his action in connection with global warming

Name the place located at the estuary of a river where migratory birds come each year

Name the place located in the south east of Mauritius which has been declared a marine park, so as to safeguard our marine ecosystem

Which of these GHG gases is contributing most to global warming?

(1. Carbon Dioxide 2. Water Vapour 3. Methane 4. Nitrous Oxide)

Which of the following natural hazards is NOT linked with climate?

(1. floods 2. droughts 3. tsunamis 4. cyclones)

Which of the following countries has suffered the most from severe drought and food shortage during the period 2007- 2011.?

(1. Somalia 2. Gabon 3. Cameroon 4. Zambia)

Which of the following sectors emit the most carbon dioxide in the atmosphere? (1. Transport 2. agriculture 3.thermal power stations 4.residential and commercial buildings)

By how much approximately the temperature of the Earth has increased during the last century , between 1900 – 2000.

(1). 0.1- 0.4 (2). 0.5-0.9 (3). 1 – 1.5 (4). 1.5 – 2.0 *C

Name the country which emits the most carbon dioxide in the world

In which Japanese city an international agreement was signed in 1997 to reduce greenhouse gases emissions and combat climate change?

How do we call a ring-shaped coral island enclosing a lagoon?

Which renewable is generated by rotating blades?

Which renewable energy is produced by photovoltaic cells?



Appendix 2: List of Local Organizations

A: Governmental Organizations

Name of Organization	Address	Contact Person	Email Address	Website	Phone Number	
1	Ministry of Environment and Sustainable Development	Ken Lee Tower, Cnr Barracks & St Georges Streets, Port-Louis		menv@mail.gov.mu	http://www.gov.mu/portal/site/menvsite/menuitem	+(230) 203 6200 - 6210 + (230) 210 5151 + (230) 210 5252 (Hotline)
2	The Minister of Education and Human Resources	Head	Permanent Secretary Mr G. GUNESH Ms K. F. K. F. Kong Win Chang Mr R. Meettook	ggunesh@mail.gov.mu kkong-win-chang@mail.gov.mu rmeettook@mail.gov.mu	http://www.gov.mu/portal/site/education/menuitem.8f3cc1b8e283f1a4cc81591000b521ca/	+(230) 601 5368 +(230) 601 5238 +(230) 601 5208
3	Rajiv Gandhi Science Center	Old Moka Road Bell Village Mauritius		rgsctf@intnet.mu		Tel:+(230) 2132773 Fax: +(230) 2132726
4	Ministry of Agro Industry	Levels 8 & 9	Permanent Secretary Mr R P NOWBUTH Phone 211 5958 Fax : 212 4427 E-mail: moa-	moa-headoffice@mail.gov.mu	http://www.gov.mu/portal/site/moa/	Tel: (+230) 212 0854, (+230) 212 2940 Fax: (+230) 212 4427

6.	National Oceanographic Data Centre	St Paul Road Vacoas Mauritius	MrM. Beebeejaun	meteo@intnet.mu m.bbjohn@ordinafrica.net	http://nodc.intnet.mu/contact2.htm	
7	Mauritius Meteorological Services	St Paul Road, Vacoas Republic of Mauritius	The Director	meteo@intnet.mu	http://meteservice.intnet.mu/	Call us on (+230) 686 1031 or (+230) 686 1032 Fax us: (+230) 686 1033
8	Mauritius Oceanography Institute	France Centre, Victoria Avenue Quatre-Bornes, Mauritius		moi@intnet.mu		Voice : (230) 427 4434 Fax : (230) 427 4433
9	Ministry of Local Government and Outer Islands	Level 3, Emmanuel Anquetil Building c/r S.S.R. & J. Koenig Streets Port Louis MAURITIUS		mlg@mail.gov.mu	http://www.gov.mu/portal/site/mlge/menuitem	Tel. +(230) 201-2155 Fax: +(230) 208-9729
10	Ministry of Health & Quality of Life	5th floor Emmanuel Anquetil Building Port Louis Mauritius		moh@mail.gov.mu	http://www.gov.mu/portal/site/mohsite/menuitem.5fb07155ef1daa461a42860aa0208a0c/	Tel.: (+230) 201-2175 Fax: (+230) 208-7222
11	Mauritian Wildlife Foundation	Grannum Road Vacoas Mauritius	http://www.mauritian-wildlife.org	executive@mauritian-wildlife.org		Tel:(230) 697-6097 Fax:(230) 697-6512



B: Non-Government Organizations

Name of Organization	Address	Contact Person	Email Address	Website	Phone Number
Environment Protection & Conservation Organisation- EPCO	Mr	75, Chevreau Lane, Clodyne Grand-Gaube	kheswar@intnet.mu		Tel : 282-0423 mob : 763-3195
Society for Biology Teachers	Mauritius Institute of Education, Reduit	Dr Ravhee Bholah			Tel : 466-1940 Mob : 788-0626
Falcon Citizen League	Bois Pignolet, Terre Rouge	Manoj Seeborun	maansaam@yahoo.com		Tel : 248-8979/ 293-8007 Mob : 789-2282
Environment Care Association (ECA)	5, Gabriel Montenot Street, Port-louis,	Mr. M. Busuwan Mr M. Poinen			Tel:264-1838 Mob:787-1392
Save our planet Earth	32 Doyen Avenue, Q. Bornes	Mr Agnihotri Rajiv	sopetoday@yahoo.com		Tel:788-0379

Appendix 3: List of International Organizations

	Name of Organisation	Address	Contact person	Email address	website	Tel/Fax	Other Info
1	INDIAN OCEAN COMMISSION (IOC)	3rd Floor. Blue Tower, Ebène	Mr Jean Claude de L'Estrac Secrétaire Général (12.07.2012)		http://www.coi-ioc.org	Tel: +230/402 6100	Office Hours Monday – Friday 08 30 – 16 30 hrs
2	WORLD HEALTH	1 st Floor,	Dr. Romesh Mundbodh WHO Liaison Officer			Tel: +230/210 7300, +230/210 7400 Fax.: +230/210 6474	Office Hours Monday – Friday 08 45 – 16 15 hrs National Day 7 April (World Health Day) 24 October (United Nations Day)



3	United Nations Development Programme (UNDP)	6th Floor, Anglo Mauritius House 1, Intendance Street P.O. Box 253 Port Louis	Mr Simon Springett UN Resident Co-ordinator & UNDP	undpmar@bow.intnet.mu	http://un.intnet.mu		Office Hours Monday – Friday 07 30 – 17 30 hrs (flexi time) National Day 24 October (United Nations Day)
4	FOOD AND	159, Route Circulaire, Ankorahotra P.O. Box 3971	Mr. Amadou Moustapha Kamara FAO Representative (Madagascar, Mauritius, Comoros and Seychelles) (06.06.07)	FAO-MG@fao.org		(261 20) 22 288 31– (261 20) 22 283 12 (261 20) 22 621 51	Office Hours Monday – Thursday 07 30 – 17 00 hrs Friday 07 30 – 12 30 hrs National Day 16 October (World Food Day)

5	UNITED NATIONS CHILDREN'S FUND (UNICEF) (non-Resident)	Bureau de Zone Antananarivo Maison Commune des Nations Unies Zone Galaxy Andraharo BP 732 Antananarive 101 Madagascar	Mr. Bruno Maes Resident			Tel: (261 20) 23 300 92/93/94 Fax No.: (261 20) 23 301 81	Office Hours: Monday – Thursday 07 30 – 16 30 hrs Friday 07 30 – 13 30 hrs National Day: 11 December
6		Batiment Ariane 5 Zone Galaxy Andraharo Antananarivo 101 Madagascar	Ms Laurence Ansermet ONUDI	office.	www.unido.org/office/	Tel: +261 20 23 365 40 Fax No.: +261 20 23 365 45	Office Hours Monday – Thursday 08 00 – 17 00 hrs Friday 08 00 – 12 00 hrs National Day 05 June: World Environment Day 15 June: World Energy Day 16 September: World Protection of Ozone Layer Day 20 November – Industrialisation Day in Africa



7	<p>WORLD FOOD PROGRAMME (WFP)</p> <p>(non-Resident)</p>	<p>Lot VB 71 GB Ambatoroka</p>	<p>Mrs Krystyna Bednar-ska</p> <p>Representa-tive (Feb. 2006)</p>	<p>wfp.</p>	<p>www.wfp.org</p>	<p>Tel: (+261 20) 22 315 72 – 22 232 91 – 32 07 137 01/09 – 33 07 001 02/03</p> <p>Fax No.:(+261 20) 22 322 99</p>	<p>Office Hours</p> <p>Monday – Thursday 08 00 – 17 00 hrs</p> <p>Friday 08 00 – 14 00 hrs</p> <p>National Day</p> <p>16 October (World Food Day)</p>
8	<p>World Meteorological organisation</p> <p>(WMO) a United Nations Specialized Agency</p>	<p>7bis, avenue de la Paix, Case- Postale No. 2300,CH-1211 Geneva 2, Switzerland</p>	<p>Michel Jarraud Secre-tary-General</p>		<p>www.wmo.int/</p>	<p>Tel :</p>	<p>World Meteorological Day:23 March</p>
9	<p>Carribbean Community Climate Change Centre. CCCCC</p>	<p>2nd Floor, Lawrence Nicholas Building Ring Road, P.O. Box 563 Belmopan, Belize, Central America</p>		<p>info@</p>		<p>Phone: (501) 822-1094 or (501) 822-1104 Fax: (501) 822-1365</p>	
10	<p>UNESCO Mauritius National Commission for UNESCO</p>	<p>c/o Ministry of Education and Human Resources Level 2 - MITD House Pont Fer - Phoenix Republic of Mauritius Indian Ocean</p>	<p>Mrs Aneeta Ghoorah</p> <p>Assistant General</p> <p>Nov 2012</p>		<p>http://whc.unesco.org/en/climatechnage</p>	<p>Tel:(230) 601 3452 (230) 601 5200 ext.5414</p> <p>Fax:(230) 696 8670 (230) 686 2532</p>	

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Appendix 5: Kits & Other Materials

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Learning Resources Calendar and Weather Pocket Chart by Learning Resources

Others (CDs, Games and Posters)

World Geography TV Game Shows on CD by Teacher's Discovery

Making Schools Safe for Students (CD & Binder Kit): Creating a Proactive School Safety Plan

Appendix 4 : Webography

<http://epa.gov/climatechange/kids/basics/concepts.html>
<http://metservice.intnet.mu/>
<http://www.nhm.ac.uk/education/online-resources/webquests/>
<http://www.mieonline.org/home/pages/Contact-Us.html>
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<http://zenhabits.net/the-cheapskate-guide-50-tips-for-frugal-living/>
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<http://tipnut.com/category/household-tips/frugal/>
<http://www.mtl-cec.org/take-action/all-actions.html>
<http://www.scribd.com/doc/70085483/Youth-Xchange-Climate-Change-and-Lifestyles->
<http://sites.google.com/site/richardgosden/green-consumerism>
<http://www.gdrc.org/uem/green-consumer.html>
<http://www.webdesignerdepot.com/2009/12/non-trashy-recycled-and-trash-art/>
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<http://iopscience.iop.org/1748-9326/7/2/024004/article>
<http://news.nationalgeographic.com/news/2010/03/photogalleries/100324-global-warming-geoengineering-pictures-asilomar/>
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<http://www.gov.mu/portal/goc/cso/ei777/envi.pdf>
<http://www.c2es.org>
<http://www.teachit.co.uk/>
http://www.eia.gov/kids/energy.cfm?page=solar_home
<http://www.altenergy.org/renewables/renewables.html>
<http://www.teachers.ash.org.au/jmresources/energy/renewable.html>
<http://www.nrel.gov/>
<http://energy.gov/>
http://en.wikipedia.org/wiki/Disaster_risk_reduction
<http://www.unisdr.org/who-we-are/what-is-drr>
http://www.concernusa.org/media/pdf/2007/10/Concern_ApproachestoDRR%20paper%20-%20final.pdf
www.unep.org/climatechange
<http://www.unisdr.org/2007/campaign/pdf/WDR-2006-2007-English-fullversion.pdf>
<http://epa.gov/climatechange/kids/basics/concepts.html>
http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/strategic_themes/climate_change.html
<http://www.unep.org/climatechange/>
<http://www.geog.ox.ac.uk/research/climate/projects/undp-cp/>
<http://www.undpcc.org/en/>



WMO home page for basic climate information for young people. http://www.wmo.int/youth/climate_en.html

WMO page on climate. http://www.wmo.int/pages/themes/climate/index_en.php#

Global Knowledge Platforms for Islands

<http://gid.unep-wcmc.org>

www.glispa.org

<http://www.sidsnet.org>

<http://sids-l.iisd.org>

www.commstoolkit.com

<http://www.myucsis>

Appendix 5: Glossary of Terms

Adaptation: changing our habits and adjusting our plans according to the demands of the changing climate

Alternative energy: energy source that has less fossil fuel or not at all

Beach: zone of loose material extending from the low water mark or a point landward where either the topography abruptly changes or permanent vegetation first appears.

Bio-fuel: fuel derived from plants, like alcohol, bagasse and firewood

Car pooling: many persons travelling by same car rather than each person driving own vehicle

Clean energy: source of energy that does not cause pollution, like falling water

Coral bleaching: coral losing its natural colour, becoming white and dying due to pollution or heat

Eco-friendly: causing no pollution and leading to a healthy life

Energy efficient bulb: bulb that converts electricity mostly into light rather than heat

Erosion: wearing away of the land, usually by the action of natural forces.

Expansion: increase in volume due to heating

Flash flood: a large amount of rain in a short time, leading to flooding

Fossil fuel: fuel like coal, gas and petrol that was formed deep under the ground

Geothermal: heat energy from the earth, like volcano

Global warming: rise in average increase in the Earth's temperature, which in turn causes changes in climate.

Greenhouse effect: heat enters the greenhouse but is not able to go out, so the greenhouse gets warmer; in the same way heat enters the atmosphere but is not able to go out, this causes global warming



Hybrid car: car that runs with petrol as well as another source like an electric motor

Greenhouse gases: any gas that absorbs infra-red radiation in the atmosphere. Greenhouse gases include water vapour, carbon dioxide, methane, nitrous oxide, halogenated fluorocarbons, ozone, perfluorinated carbons and hydrocarbons

Landfill: a place where garbage is thrown and then covered by soil

Low carbon energy source: a source of energy that has low pollution

Mitigation: any action that we take either to reduce emission of greenhouse gases or to absorb carbon dioxide already present in the atmosphere

Renewable source of energy: a source of energy that is available even after continuous use, like energy from the sun and wind

Sea level rise: the level of water in the sea increasing due to melting of ice and due to expansion of sea water on heating

Stagnant water: water that is not absorbed by the soil, does not get drained away and remains on the surface for long time

Storm surge: abnormal rise in sea level due to strong wind and it can cause flooding of coastal areas

Wetland: Big area of land that acts as filters for polluted water flowing from