

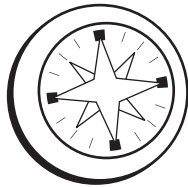
Name: \_\_\_\_\_

School: \_\_\_\_\_

Class: \_\_\_\_\_

Year: \_\_\_\_\_

# **GEOGRAPHY SECONDARY CYCLE ONE STUDENT'S LOGBOOK**



## **COMPETENCY 3**

### **CONSTRUCTING MY CONSCIOUSNESS OF GLOBAL CITIZENSHIP**

The activities included in this Logbook were designed so that you become aware of the seriousness of the impending water shortage that the planet Earth is about to face in the near future. Also how you, as a concerned citizen, can contribute significantly to minimize the problem.



# INFORMATION SHEET 8

# THE MOJAVE DESERT



The Mojave Desert is the smallest desert in North America. It is located in the south eastern part of California. On the eastern side of the desert the Colorado River runs through it and on the Western side are the Sierra Nevada Mountains. It is known as the high desert due to its high elevation. In the north, it is a cold desert and in the south a hot desert.

understood. Rain occurs mostly in the winter season from October to March.

The Mojave Desert contains some interesting features; for example The Kelso Dunes are the largest of the Mojave dune fields, reaching 152 to 182 meters in height. When you run down these dunes you can hear an unusual “barking” sound. This phenomenon is not entirely



Satellite image of the Mojave Desert and Los Angeles



**Location:** South Eastern California.  
**Area:** 65 000 square kilometers.  
**Precipitation:** 150mm/yr.  
**Climate:** Cold desert–north  
Hot desert–south.



# 1 PART

## TO DEVELOP AN AWARENESS OF THE FUNDAMENTAL IMPORTANCE OF FRESH WATER TO LIFE.



HOW IMPORTANT  
IS FRESH WATER TO LIFE?

### TIME

± 45 minutes



### CROSS-CURRICULAR COMPETENCIES:

Intellectual competencies:

To solve problems

Personal and Social competencies:

To cooperate with others



### SUBJECT-SPECIFIC COMPETENCY

Looks at the organization of a territory

### MATERIALS NEEDED



A. Student Logbook

# ACTIVITY 1.1

You have just discussed with other members of your class the basic needs for survival in the six different geographical regions presented. Write down your own opinion giving reasons for your choices. Before starting, look at the rubric provided so that you know what is expected when writing your ideas down.



Tongass Rainforest by Flickr user Swanksalot

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In the Deser/Feeling Like Walking by Flickr user Horizon

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The Chugach Mountains by Flickr user 'ckindel'



Lonely Island by Flickr user gari.baldi

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Bombed Hospital by Flickr user The Rocketeer

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Badlands by Flickr user Matt Binns

## RUBRIC TO EVALUATE COMPETENCY 1 LOOKS AT THE ORGANIZATION OF A TERRITORY

CRITERIA	1 LIMITED	2 DEVELOPING	3 MEETS STANDARDS	4 EXCEEDS STANDARDS	5 EXCELS
Identification and explanation of organization of territory <sup>1</sup>	I do <b>not</b> identify and provide <b>limited</b> explanations.	I have <b>difficulty</b> in identifying. I provide <b>partial</b> explanations.	I am <b>able</b> to identify and provide <b>clear</b> and <b>logical</b> explanations.	I identify with <b>ease</b> . I provide <b>thorough</b> and <b>insightful</b> explanations.	I identify with <b>great ease</b> . I provide <b>very original</b> and <b>insightful</b> explanations
Use of geographical vocabulary <sup>2</sup>	I use <b>limited</b> or <b>no</b> geographical vocabulary.	I use <b>some</b> geographical vocabulary.	I use an <b>acceptable</b> range of geographical vocabulary with <b>clarity</b> and <b>precision</b> .	I use a <b>broad</b> range of geographical vocabulary with <b>clarity</b> and <b>precision</b> .	I use <b>new</b> words and concepts <b>not provided previously</b> by the teacher.
Presentation of possible solution(s) to obtain water. <sup>3</sup>	I am <b>unable</b> to offer solutions even if teacher intervenes several times.	I offer <b>some</b> solutions with <b>some help</b> from teacher.	I offer solutions with <b>very little</b> help from the teacher.	I offer <b>viable</b> solutions to the problem with <b>no intervention</b> from the teacher.	I offer <b>creative</b> and <b>original</b> solutions to the problem with <b>no intervention</b> .

1. Identify the type of territory (forest, urban, etc) and explains causes for lack of water.

2. Use geographical terminology such as: urban, rural, region, isolated, desert etc...

3. Use several approaches to analyze the problem.

In this particular case, all the criteria created weigh the same.

# COEVALUATION CHECKLIST FOR THE COMPETENCY COOPERATES WITH OTHERS

NAME: \_\_\_\_\_ CLASS: \_\_\_\_\_

DATE: \_\_\_\_\_

Teammates:

\_\_\_\_\_

\_\_\_\_\_

Legend: Very well (VW) Well (W) I Need improvement (NI)	Team	Me

I propose to take the following action to improve my next cooperative task:

\_\_\_\_\_

I suggest the following change in order to improve our teamwork:

\_\_\_\_\_

Teacher's suggestion

\_\_\_\_\_

Based on Student's Logbook (Geography, step 7) MELs, 2007.





# 2 PART

## TO DEVELOP AN AWARENESS OF THE EXTENT OF THE WATER PROBLEM



IN WHAT WAY IS THE WATER CRISIS A  
GLOBAL ISSUE?

### TIME

± 45 minutes



### CROSS-CURRICULAR COMPETENCIES:

Intellectual competencies:

To solve problems



### SUBJECT-SPECIFIC COMPETENCY

Construct his/her consciousness of global citizenship

Shows the global nature of the geographical phenomenon  
in question

### MATERIALS NEEDED



A. Student's Logbook

B. World Atlas

## ACTIVITY 2

By now, you have realized that water is fundamental to life. Unfortunately, such a vital commodity is dwindling in many parts of our planet. The regions most affected are, of course, the deserts and semi-deserts. It is alarming to imagine that more than 33% of the land surface of our planet has acquired characteristics of a desert which include very low precipitation, high daily temperature ranges, and sparse vegetation, all of which offer a low potential for human habitat.

Part 2 is a cursory study of the deserts of the world. It offers a clear and foreboding image of things to come in a global scale should the present situation of the water crisis continue. A concerted collective effort is needed to curb its momentum and it is imperative to educate everybody towards an awareness of this problem.

Eight Information Sheets on the most important deserts are given plus one Information Sheet that incorporates graphs.

1. Cold Deserts  
The Antarctic Desert  
and The Patagonian Desert
2. The Sahara Desert
3. The Gobi Desert
4. The Taklaman Desert
5. The Namib Desert
6. The Kalahari Desert
7. The Australian Desert
8. The Mojave Desert

On each Information Sheet is a small map of the continent(s) where the particular desert(s) is/are located. Tell the students to shade the region where they think the desert is situated. After completing this activity on each Information Sheet, the student has done the preliminary work needed to create his/her World Map of deserts.

Read all the Information Sheets and then convert the given world map into a World Map of Deserts. Remember the basic principles of map making, i.e. the title, the legend, the compass, naming the continents and the oceans, and finally create the thematic map demanded. Then color the desert areas according to what you have learned from reading the Information Sheets.

However, these are far from being comprehensive. Research in the atlases to find the following four more deserts to be included in your world map.

1. The Arabian Desert covering most of the Arabian Peninsula
2. The Atacama Desert running down the west coast of Chile
3. The Thar Desert in the northwest of India
4. Turkestan Desert in southern Russia.

# INFORMATION SHEET 1

## COLD DESERTS



The Antarctic and the Patagonian (Argentina) cold deserts are situated in the southern hemisphere. They receive abundant rainfall in winter, and have fairly warm, short summers, with occasional rain.

Most plants found in cold deserts are deciduous with spiny leaves to protect themselves from extreme temperatures. Some lichen has been found in Torgerson island, Antarctica.

The most common animals found in cold deserts are jack rabbits, kangaroo rats,

kangaroo mice, grasshopper mice, and antelope ground squirrels.



Satellite image of Antarctica



Kangaroo Rat

1b



Lichen on Torgerson Island

1a

### Antarctica Desert

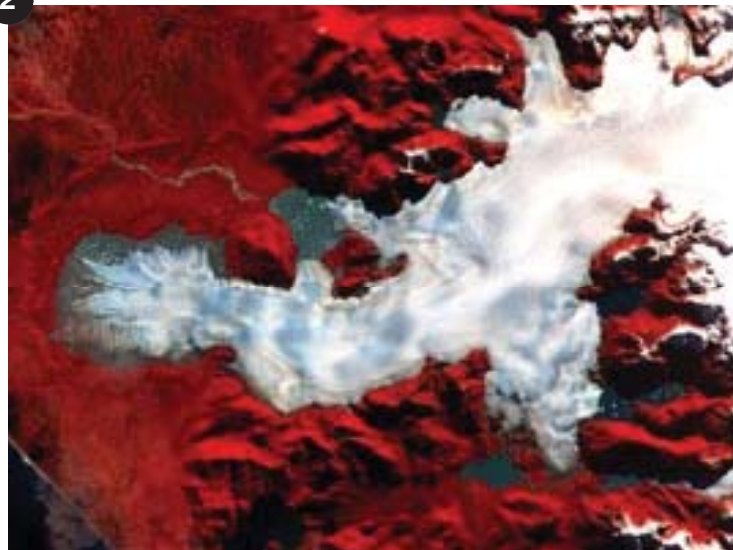
**Location:** Antarctic.

**Area:** 14 245 000 square kilometres.

**Precipitation:** 15mm./yr.

**Climate:** Cold

2



Satellite image of Patagonia

### Patagonian Desert

**Location:** Argentina.

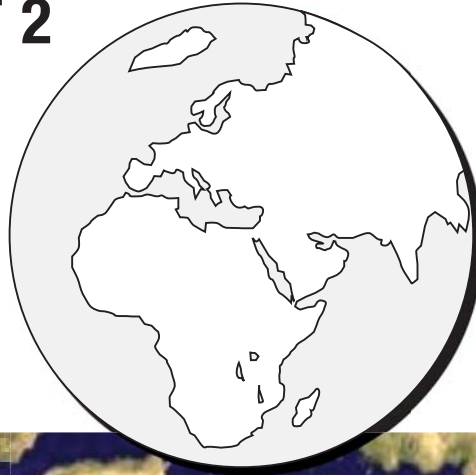
**Area:** 673 000 square kilometres.

**Precipitation:** 26mm /yr.

**Climate:** Cold

## INFORMATION SHEET 2

# THE SAHARA DESERT



SAHARA MEANS  
DESERT IN ARABIC

The Sahara is the second largest desert after Antarctica. It is believed to be 2.5 million years old. Located in North Africa, it has one of the harshest climates in the world and yet, it is inhabited by some 2.5 million people, mostly from Egypt, Mauritania, Morocco, and Algeria. Because they move from region to region in search for better conditions, they are known as nomads. Daytime temperatures can reach 58 °C while at night it can plummet to -6 °C.



Satellite image of the Sahara Desert.

The largest city in the Sahara is the Egyptian city of Cairo, in the Nile Valley.

**Location:** North Africa.

**Area:** 9 million square kilometres.

**Precipitation:** 250mm/yr.

**Climate:** Hot



# INFORMATION SHEET 3

## THE GOBI DESERT

GOBI MEANS VERY LARGE  
AND DRY IN MONGOLIAN

The Gobi is the largest desert in Asia and the third largest in the world. Within 24 hours, the temperatures can vary from a freezing  $-32^{\circ}\text{C}$  to a sizzling  $58^{\circ}\text{C}$ . It is one of the few deserts that can boast of having frost and even snow capping its dunes at times.

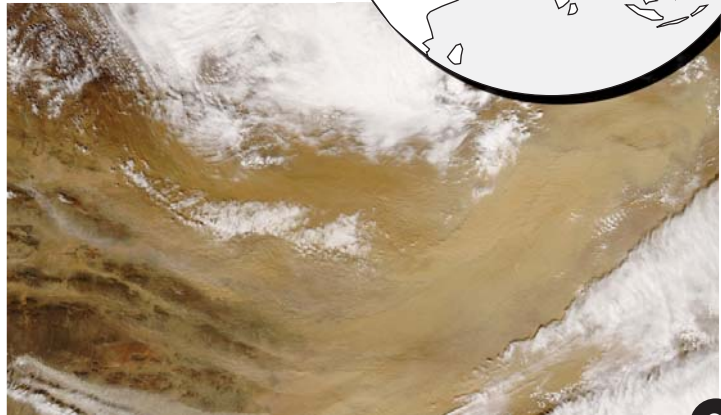
The Gobi desert is world renowned for its fossil finds, as well as dinosaur eggs. Historically, it was the birth place of the famous Mongolian empire (1206-1405), founded by Genghis Khan.

**Location:** Mongolia.

**Area:** 1 295 000 square kilometres.

**Precipitation:** 194mm./yr.

**Climate:** Cold and Hot



Satellite image of a dust storm in the Gobi Desert



1

2



Bactrian camels by the sand dunes of Khongoryn Els, in Mongolia.

# INFORMATION SHEET 4

## THE TAKLAMAKAN DESERT



1

A Tarim Basin mummy photographed by Aurel Stein circa 1910.

TAKLAMAKAN MEANS THAT "IF YOU GO IN, YOU WON'T COME OUT".

The Taklamakan is the largest "sand only" desert in the world situated in Central Asia, in the Western region of China. Formerly a fertile region due to lack of rainfall, it has become a barren, bleak, uninhabited 900

kilometer stretch of drifting sand dunes where very little vegetation thrives. It is extremely hot during the day and very cold at night.

Four thousand years old mummies of various ethnic origins including European have been found in this area.

2



**Location:** Central Asia-Western China.  
**Area:** 270 000 square kilometers.  
**Precipitation:** 10-38mm./yr  
**Climate:** Extremely hot and cold.

Dust Storm in Taklamakan from space, June 25, 2005.

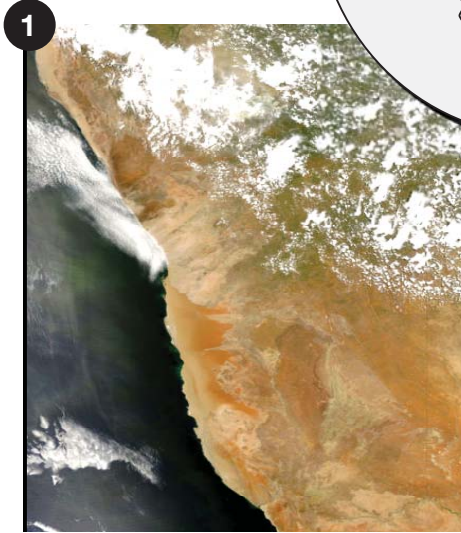
# INFORMATION SHEET 5

## THE NAMIB DESERT



The Namib Desert is considered to be one of the oldest and driest deserts on Earth. Formed approximately 80 million years ago, it runs along the Atlantic Ocean coast of Namibia for 1600 kilometers - a barren, almost uninhabited coast often covered by fog. It is the habitat of the welwitschia plant that survives by absorbing the moisture from the fog that rolls from the sea and it can live up to 2000 years !!

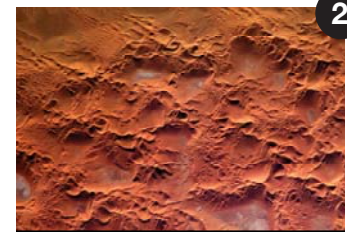
Its sand dunes reach the height of 340 meters



Satellite image of the Namib Desert

Below is an image of the Dune Sea of the Namib Desert. Note the irregular and complex patterns. These patterns are poorly understood by geologists.

(±100 meters higher than Mount Royal in Montreal), considered among the highest in the world.



**Location:** Along the Namibian coast.

**Area:** 500 000 square kilometres.

**Precipitation:** less than 10mm.

**Climate:** Hot, dry.





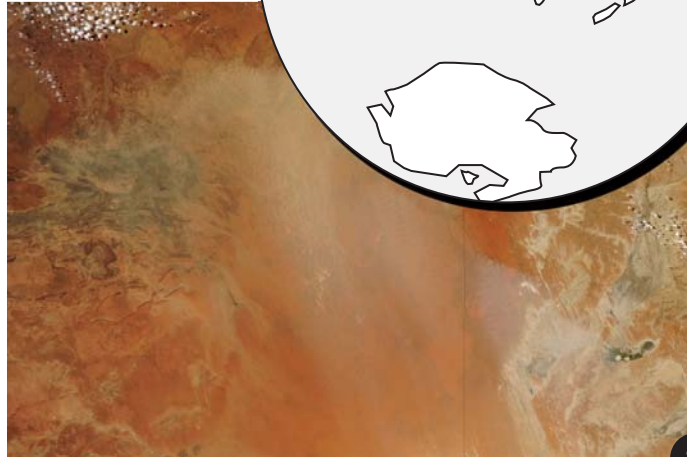
# INFORMATION SHEET 6

# THE SIMPSON

# DESERT



The vast Simpson Desert is situated in Central Australia. It has the world's longest parallel sand dunes, running in a north-south direction. While the vegetation holds the dune in position, the dune system protects the wide variety of desert flora and fauna from the harsh terrain that surrounds it.



Satellite image of a dust storm in the Simpson Desert

The Simpson Desert Regional Reserve Park was created to protect the local desert wildlife. The landscape consists not only of dunes but also of lakes, grassland and woodlands. The trees soak up water from underground water.



**Location:** Central Australia

**Area:** Approximately 170,000 square kilometres.

**Precipitation:** Less than 200 mm / year.

**Climate:** Hot.

# INFORMATION SHEET 7

## THE KALAHARI DESERT

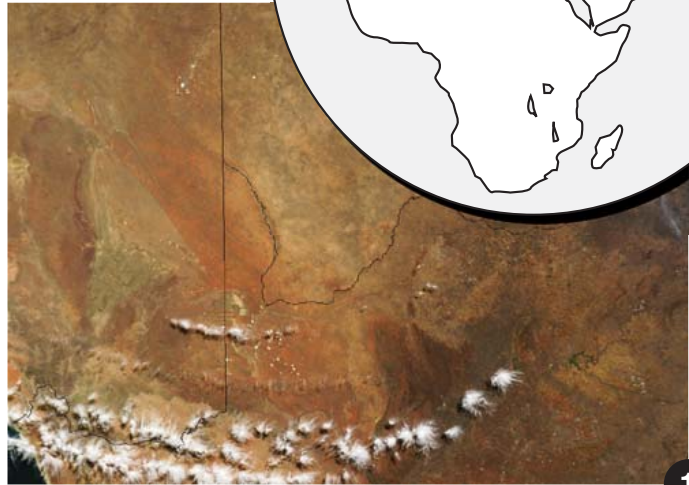
KALAHARI MEANS  
THE GREAT THIRST.

The Kalahari Desert is a large semi-arid desert of red sand covering much of Botswana, part of eastern Namibia, and the northern part of the Cape Province. It offers excellent grazing for animals after a rainfall. Its wildlife consists of baboons, elephants, antelopes, giraffes, zebras, and lions. Its Animal Reserves act as a sanctuary to animals and vegetation. It is also the ancestral land of the Bushmen.



2

Meerkat



1

Satellite image of the Kalahari Desert.

The temperatures of this semi-arid desert are more amenable than those found in a true desert. Summer temperatures range from 20°C to 40 °C and winter ones do not go much below 0 °C.

**Location:**  
Botswana

**Area:** 9 000 000  
square kilometres.

**Precipitation:** 175  
- 250mm./yr.

**Climate:** Semi arid,  
hot, cold.



3

Fairy Wren

# INFORMATION SHEET 8

## THE MOJAVE DESERT



The Mojave Desert is the smallest desert in North America. It is located in the south eastern part of California. On the eastern side of the desert the Colorado River runs through it and on the Western side are the Sierra Nevada Mountains. It is known as the high desert due to its high elevation. In the north, it is a cold desert and in the south a hot desert.

understood. Rain occurs mostly in the winter season from October to March.

The Mojave Desert contains some interesting features; for example The Kelso Dunes are the largest of the Mojave dune fields, reaching 152 to 182 meters in height. When you run down these dunes you can hear an unusual “barking” sound. This phenomenon is not entirely



Satellite image of the Mojave Desert and Los Angeles



**Location:** South Eastern California.  
**Area:** 65 000 square kilometers.  
**Precipitation:** 150mm/yr.  
**Climate:** Cold desert–north  
 Hot desert–south.



# DESERT LINKS

Here is a list of websites that offer you a wealth of information on these fascinating regions of our Planet. Enjoy!!

## 1. Cold Deserts-Antarctica and Patagonian Antarctica

<http://en.wikipedia.org/wiki/Antarctica>

*Great site.*

<http://www.enchantedlearning.com/school/Antarctica/>

*Slide Show.*

[http://www.coolantarctica.com/gallery/Antarctica\\_gallery\\_home.htm](http://www.coolantarctica.com/gallery/Antarctica_gallery_home.htm)

*Multimedia site(cool clips).*

<http://www.discoveringantarctica.org.uk/>

*Patagonian Desert*

[http://en.wikipedia.org/wiki/Patagonian\\_Desert](http://en.wikipedia.org/wiki/Patagonian_Desert)

[http://library.thinkquest.org/28855/des\\_atacama.html](http://library.thinkquest.org/28855/des_atacama.html)

*Images*

<http://weecheng.com/latin/valdes/valdes.htm>

## 2. Sahara Desert

<http://www.calacademy.org/exhibits/africa/exhibit/sahara/>

<http://geology.com/records/sahara-desert-map.shtml>

<http://www.ahsd25.k12.il.us/Curriculum%20Info/africa/desert.htm>

[http://www.worldwildlife.org/wildworld/profiles/terrestrial/pa/pa1327\\_full.html](http://www.worldwildlife.org/wildworld/profiles/terrestrial/pa/pa1327_full.html)

<http://www.d230.org/vja/research/science/biology/biome/d2/ani.htm>

<http://www.d230.org/vja/research/science/biology/biome/d2/ani.htm>

<http://www.swindsor.k12.ct.us/Schools/tems/teachers/swierczynski/sahara.htm>

## 3. The Gobi Desert

<http://www.infoplease.com/ce6/world/A0821092.html>

<http://www.oneearthadventures.com/gobi/index.htm>

## 4. The Taklamakan Desert

[http://encarta.msn.com/map\\_701516923/Takla\\_Makan.html](http://encarta.msn.com/map_701516923/Takla_Makan.html)

<http://en.wikipedia.org/wiki/Taklamakan>

*Ancient Tribe*

<http://www.crystalinks.com/taklamakan.html>

*Taklamakan mummies*

<http://www.meshrep.com/PicOfDay/mummies/mummies.htm>

## 5. Namib desert

[http://www.greatestplaces.org/book\\_pages/namib2.htm](http://www.greatestplaces.org/book_pages/namib2.htm)

<http://www.greatestplaces.org/notes/namib.htm>

[http://en.wikipedia.org/wiki/Namib\\_Desert](http://en.wikipedia.org/wiki/Namib_Desert)

<http://www.culturefocus.com/namibia.htm>

## 6. The Simpson Desert

[http://en.wikipedia.org/wiki/Simpson\\_Desert](http://en.wikipedia.org/wiki/Simpson_Desert)

*Images from Australia's Simpson Desert*

<http://members.optusnet.com.au/philipgame02/SimpsonGallery/index.htm>

*Nice site-easy to read.*

<http://www.kidcyber.com.au/topics/Simpsdest.htm>

*Site produced by students.*

<http://web.hcsp.s.a.edu.au/projects/deserts/projects/Group4/index.htm>

### **7. The Kalahari Desert**

To find out more on the author of the Juvenile Superb Fairy Wren, click on the link below.

<http://en.wikipedia.org/wiki/User:LiquidGhoul>

[http://en.wikipedia.org/wiki/Kalahari\\_Desert](http://en.wikipedia.org/wiki/Kalahari_Desert)

*Information- tribes, plants, animals, movie; etc.*

<http://abbott-infotech.co.za/map%20of%20kalahari%20desert.html>

### **8. Mojave Desert**

[http://www.desertusa.com/du\\_mojave.html](http://www.desertusa.com/du_mojave.html)

<http://www.nps.gov/archive/moja/home.htm>

<http://mojave.usgs.gov/rvde/>

People in the Mojave desert-past and present.

<http://mojavedesert.net/>

*Plants and Animals*

<http://www.nps.gov/archive/moja/mojaan.htm>

[http://www.worldwildlife.org/wildworld/profiles/terrestrial/pa/pa1314\\_full.html](http://www.worldwildlife.org/wildworld/profiles/terrestrial/pa/pa1314_full.html)

### **Desert Biomes**

<http://www.desertusa.com/life.html>

<http://www.enchantedlearning.com/biomes/desert/desert.shtml>

[http://powayusd.sdcoe.k12.ca.us/teachers/blees/desert\\_biome.htm](http://powayusd.sdcoe.k12.ca.us/teachers/blees/desert_biome.htm)

<http://www.ucmp.berkeley.edu/exhibits/biomes/deserts.php>

### **Deserts in general**

<http://www.ahsd25.k12.il.us/Curriculum%20Info/africa/desert.htm>

<http://earthobservatory.nasa.gov/Laboratory/Biome/biodesert.html>

<http://www.mrdowling.com/607-deserts.html>

<http://www.kidskonnnect.com/Desert/DesertHome.html>

<http://www.factmonster.com/ipka/A0778851.html>

<http://www.mbgnet.net/>

<http://www.ahsd25.k12.il.us/Curriculum%20Info/africa/desert.htm>

[http://www.lcc.ctc.edu/departments/natural\\_sciences/links/linksDESERT.xtm](http://www.lcc.ctc.edu/departments/natural_sciences/links/linksDESERT.xtm)

### **Maps**

<http://www2.nature.nps.gov/geology/usgsnps/mojave/mojaed.html>

[http://www.worldbiomes.com/biomes\\_map.htm](http://www.worldbiomes.com/biomes_map.htm)

### **Desert animals**

<http://science.hq.nasa.gov/cgi-bin/search.cgi?query=deserts&submit=Find>

[http://www.cdli.ca/CITE/desert\\_animals.htm](http://www.cdli.ca/CITE/desert_animals.htm)

### **Amazing facts.**

<http://www.windows.ucar.edu/tour/link=/earth/Water/fact.html>

### **Desert movies**

<http://society.terraformers.ca/content/view/92/182/>

[http://www.nationalgeographic.com/geographyaction/habitats/deserts\\_tundra.html](http://www.nationalgeographic.com/geographyaction/habitats/deserts_tundra.html)

### **Desert games**

<http://www.pbs.org/wgbh/nova/ubar/hotsceinceubar/index.html>



## ILLUSTRATED MAP RUBRIC

CRITERIA	1 LIMITED	2 DEVELOPING	3 MEETS STANDARDS	4 EXCEEDS STANDARDS	5 EXCELS
TITLE	Purpose/content of the map is <b>not clear</b> from the title.	Title <b>tells</b> the purpose/content of the map, but is <b>not</b> located at the top of the map.	Title <b>tells</b> the purpose/content of the map, and is printed at the top of the map.	Title <b>tells</b> the purpose/content of the map, and is printed at the top of the map.	Title is <b>original, catchy and pertinent</b> .
LABELS ACCURACY	<b>None</b> of the items are labeled and located correctly.	<b>Few</b> of the items are labeled and located correctly.	<b>A fair amount</b> of the items are labeled and located correctly.	<b>Most</b> of the items are labeled and located correctly.	<b>All</b> items are labeled and located correctly.
LABELS AND FEATURES - NEATNESS	<b>None</b> of the labels/features can be read easily.	<b>Few</b> of the labels/features can be read easily.	<b>A fair amount</b> of the labels/features can be read easily.	<b>Most</b> of the labels/features can be read easily.	<b>All</b> labels/features can be read easily.
MAP - LEGEND KEY	Legend is <b>absent</b> .	Legend contains <b>some</b> symbols, including a compass rose.	Legend contains an <b>almost complete</b> set of symbols, including a compass rose.	Legend is easy to find and contains a <b>complete</b> set of symbols, including a compass rose.	The presentation of the legend is <b>complete, correct</b> and cartographically <b>attractive</b> .
SCALE	Many features of the map are <b>not</b> drawn to scale and/or there is <b>no</b> scale marker on the map	Many features are <b>not</b> drawn to scale. The scale used is <b>clearly</b> indicated on the map.	<b>Not all</b> features are drawn to scale even though a scale is clearly indicated on the map.	<b>All</b> features are drawn to scale. The scale is <b>clearly</b> indicated on the map.	<b>A</b>

# 3 PART

# THE CASE OF MONTREAL AND CAIRO



WHAT ARE THE SIMILARITIES AND  
INEQUALITIES BETWEEN TWO GREAT  
METROPOLISES?

## TIME

± 75 minutes



## CROSS-CURRICULAR COMPETENCIES:

Intellectual competencies:

To solve problems

Personal and Social competencies:



## SUBJECT-SPECIFIC COMPETENCY

Construct his/her consciousness of global citizenship

Recognizes instances of inequality and complementarity according to territories

## MATERIALS NEEDED



- A. Student's Logbook
- B. World Atlas



# WHERE IN THE WORLD ARE THEY?



	MONTREAL	CAIRO
1. Hemisphere		
1. Continent		
1. Country		
1. Province/State		
1. The river that flows through		
1. Neighboring bodies of water		
1. Neighboring countries		

# MONTREAL

Information Box 1: Aerial view of Montreal



Photo taken and graciously lent by Ron Clarke.

WHAT DO YOU SEE?

In the foreground \_\_\_\_\_

---

---

In the middle ground \_\_\_\_\_

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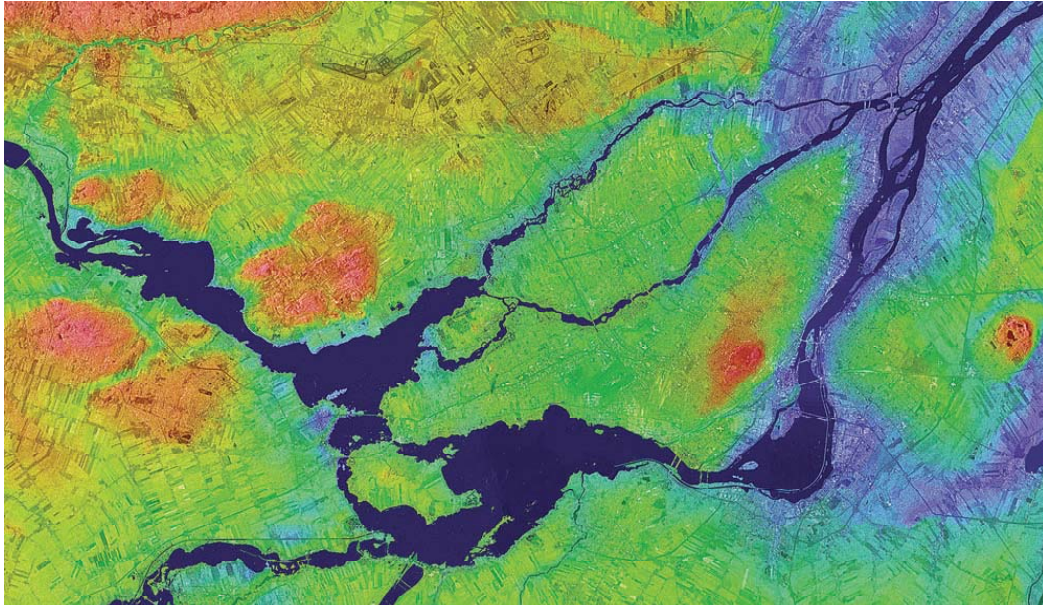
In the background \_\_\_\_\_

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## Information Box 2: Montreal River System

WRITE MONTREAL IN THE PROPER PLACE.



RADARSAT-1 data – Courtesy of the Canadian Space Agency 1999

Information Box 3 Title: \_\_\_\_\_

Montreal is the largest city in Quebec with 3.5 million inhabitants. It is the largest inland harbor in the world, and is situated on one of the world's greatest commercial waterways. It collects water from two lakes ( Saint Louis and Deux Montagnes) and three rivers ( Rivière de la Prairie, Ottawa, and St. Lawrence).

Information Box 4 Title: \_\_\_\_\_

The first Canada-Quebec joint environment program of the St. Lawrence was carried out from 1973 to 1979. A committee identified various water problems and suggested ways to deal with them. Throughout the years many programs were created, all of them sharing one clear objective: to treat the waste water.

Presently, the city of Montreal is spending 10 billion dollars to maintain and improve the quality of **drinking water** and its **distribution** to all its citizens. It will take many years before the project is completed but the objective is to meet, at all times, the high water standards set by Quebec laws.

Because Montreal industries, business and institutions consume huge quantities of water in their daily operations, the city of Montreal will install 23 000 water meters to measure and compare water consumption in residential areas to water consumption in industrial and commercial areas.

Information Box 5 Title: \_\_\_\_\_

Montreal drinking water is of high standard. However, in 2006, tests were conducted revealing that houses built before 1970 have lead pipes. Although there is very little health risk involved in such houses, the authorities have declared that their owners can have the lead pipes removed at no cost.

Information Box 6 Title: \_\_\_\_\_

Research done between 1992 and 1998 showed that the St. Lawrence River water, around Montreal, was full of pesticides originating from the surrounding farms, orchards and vegetable growing regions. It raised serious concerns about the health of aquatic life and the safety of drinking water. Monitoring programs, such as St. Lawrence Vision Action, were soon introduced to improve the water quality and reduce pesticide use by 50%.

Information Box 7 Title: \_\_\_\_\_

Vessels of all types, cargo, container or passenger, arrive at the Montreal harbor everyday. Modern vessels are constructed with water tanks, known as ballast tanks, for stability and keeping the propeller submerged. These tanks are filled with water from wherever the vessels have docked before they arrive in Montreal harbor. This means that in their ballast water they may carry non-indigenous aquatic species dangerous to the local ones. To avoid an ecological disaster, in 1990 regulations were introduced to maintain the good quality of the St. Lawrence River water by introducing a series of measures that assured the control of ballast water in every ship that enters the Montreal port.

Information Box 8 Title: \_\_\_\_\_

The Quebec Department of the Environment has been working with industrial associations for a number of years to develop strategies to decrease the St. Lawrence River pollution caused by discharge of industrial waste. Clean-up certificates are issued to those that comply with the regulations.

Information Box 9 Title: \_\_\_\_\_

#### AN INDUSTRIAL EXAMPLE, THE CASE OF PAPER INDUSTRY

The paper industry in and around Montreal uses toxic chlorine-based bleaches, later discharged into the St. Lawrence River heavily polluting it. Concern of its impact on the health of the community and the environment led to a series of regulations being introduced in 1992. Considerable success has been achieved.

Information Box 10 Title: \_\_\_\_\_

Since the St. Lawrence River is shared by both Canada and the United States, the two countries decided to work closely to resolve transboundary environmental issues. In 1909, The Boundary Waters Treaty was signed to resolve differences and promote control of water pollution .

# CAIRO

## Information Box 1: Aerial view of Cairo



View of Cairo by Flickr user tympsy

WHAT DO YOU SEE?

In the foreground \_\_\_\_\_

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In the middle ground \_\_\_\_\_

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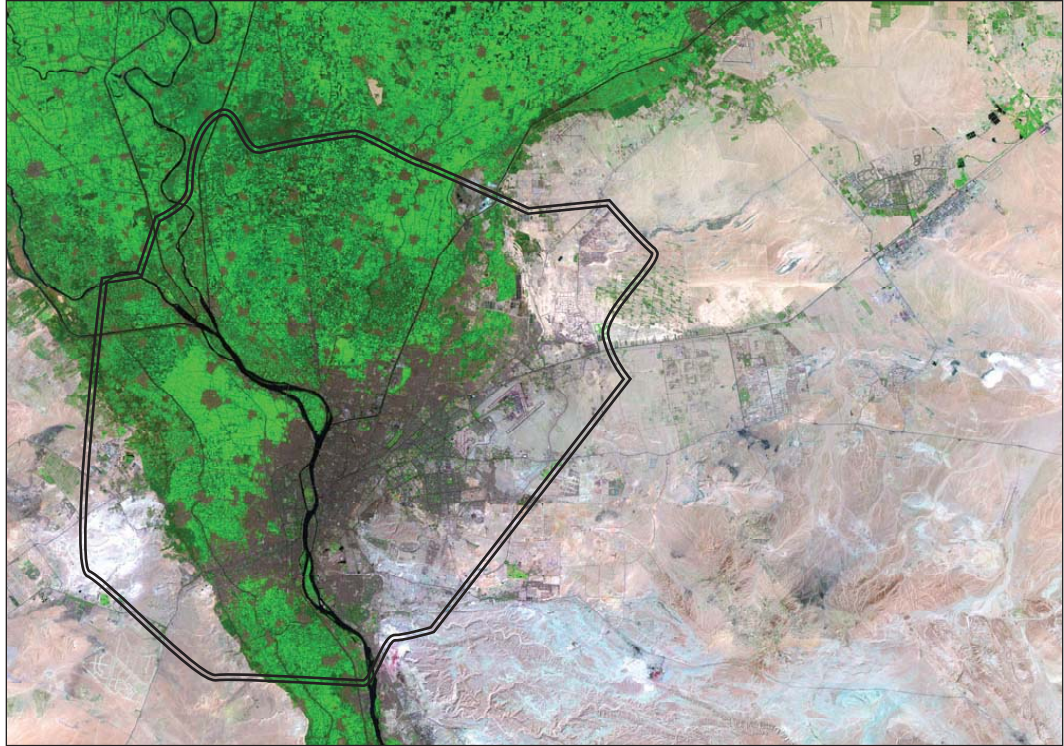
In the background \_\_\_\_\_

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## Information Box 2: Cairo River System

WRITE CAIRO IN THE PROPER PLACE.



Courtesy of the NASA Earth Observatory

Information Box 3 Title: \_\_\_\_\_

In the fifth century B.C., a Greek historian, Herodotus wrote, “ Egypt is the gift of the Nile” . It is the longest river in the world, meandering from the Sudan and flowing northward across Egypt before emptying into the Mediterranean Sea. It runs through ten countries (Ethiopia, Sudan, Egypt, Uganda, Kenya, Tanzania, Burundi, Rwanda, Democratic Republic of Congo, and Eritrea) making an agreement on a common policy of water management almost impossible. They continuously fight as each country interprets the 1959 Nile Agreement to their individual advantage. The Nile is everything to the Egyptian people. It is their life, their food, their existence.

Information Box 4 Title: \_\_\_\_\_

Cairo, the capital of Egypt, is situated in the northern part of the country. It is located on the banks and islands (Gezira and Roda) of the Nile River, immediately south of the point where the river leaves its desert-bound valley and breaks into two branches into the low-lying Nile Delta region.

Information Box 5 Title: \_\_\_\_\_

Cairo is the largest population center in Africa with 17.5 million inhabitants. Its only source of water is the Nile. Unfortunately, it is also the only receiver of Cairo's wastewater. The rapid growth of Cairo's population makes the problem of improving the already poor quality of drinking water and the deficient wastewater networks a difficult task for the authorities.

POPULATION GROWTH IN CAIRO	
1900	570 000
1920	865 000
1930	1 139 000
1950	2 426 000
1960	4 022 000
1970	5 950 000
1980	7 772 000
1990	10 228 000
1994	12 895 000
2000	14 000 000
2006	17 500 000

Daily natality increase of 1 000 per day

Information Box 6 Title: \_\_\_\_\_

Present-day Cairo is a chaotic city. Housing is so hard to find and so expensive that 3 million people live on the rooftops. Needless to say, such housing has no running water.

Information Box 7 Title: \_\_\_\_\_

Keeping the residents of Cairo supplied with water is difficult because the city's pipelines are old.

- 12% of the pipelines are over 40 years old
- 60 % of the pipelines date before 1970.
- The pipelines are too narrow to meet the current needs.
- In Old Cairo, 40% of the water running through the pipelines leaks and floods the foundations of buildings.

The government has undertaken to modernize the existing pumping and water purification plants but progress has been slow.

Information Box 8 Title: \_\_\_\_\_

Fifty to sixty-five percent of Egyptian industry (chemical, textile, metal, food, and engineering) is found in Cairo. The industry discharges, often without pre-treatment, 56 million m<sup>3</sup> of industrial waste substances annually into the Nile. Since 1995, a top priority of the Egyptian Environmental Agency has been to treat this industrial wastewater but the outcomes are far from satisfactory.

Information Box 9 Title: \_\_\_\_\_

Many underprivileged Egyptian women play an important role in domestic water management. They are responsible not only for collecting, storing, and using water, but also for its disposal. Further still, they wash their laundry and utensils in the river. This carries a health issue since these women come into direct contact with the polluted waters of the Nile. Access to some tap water has been offered but many prefer to go to the river for they want to continue their social life of lively chatting with their relatives, friends and neighbors.

Information Box 10 Title: \_\_\_\_\_

Cairo suffers from water pollution as the sewer system tends to fail and overflow. On occasion, sewage has escaped onto the streets to create a health hazard. It is hoped that this problem will be solved by a new sewer system funded by the European Union. The dangerously high level of mercury in the city's water system has global health officials concerned over related health risks.

## **REFERENCES CONSULT THEM TOO!**

### **MONTREAL**

<http://www.ccmatthews.com>

[http://www2.ville.montreal.qc.ca/pls/portal/docs/page/eau\\_potable\\_en/chantiers.shtm](http://www2.ville.montreal.qc.ca/pls/portal/docs/page/eau_potable_en/chantiers.shtm)

[http://www.slv2000.qc.ca/plan\\_action/phase3agriculture/](http://www.slv2000.qc.ca/plan_action/phase3agriculture/)

[http://www.slv2000.qc.ca/20\\_ans/programmes\\_a.htm](http://www.slv2000.qc.ca/20_ans/programmes_a.htm)

<http://canada.usembassy.gov/content>

### **CAIRO**

<http://proutworld.prout.org/features/nile.htm>

<http://en.wikipedia.org/wiki/Cairo>

<http://www.hf-fak.uib.no>

<http://www.cdc.gov/ncidod/eid/voliono11/04-0237.htm>



# ACTIVITY 3.1

(work done in teams)

1. Consider the information just read, and complete ACTIVITY 3.1.
2. Remember to consider such topics as: geographical situation; importance of the river(s); population; housing ; agricultural regions; industrial regions, wastewater; sewage ...
3. Compare and contrast the two metropolises using simple but short and pertinent sentences that explain the similarities or the differences.

CHARACTERISTICS	MONTREAL	CAIRO	SIMILAR OR DIFFERENT?

# ACTIVITY 3.2

(work done individually)

1. Identify any three problems of water usage the Cairenes might have to face daily.

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

2. Give a tentative solution to **one** of the mentioned problems.

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3. Identify any three problems of water usage the Montrealers might have to face daily.

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

4. Give a tentative solution to **one** of the mentioned problems.

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## I USE INFORMATION

NAME:	CLASS:	DATE:
Legend: Very good (VG)   Good (G) Needs improvement (NI)	Initials	Date
• Consultation of various sources		
• Effective research strategies		
• Critical analysis of information		
• Logical organization of information		
• Use of information in new contexts		
Personal challenge:		
Teacher's suggestions:		

**A RUBRIC FOR AN ACTIVITY ON COMPARING AND/OR CONTRASTING**

Criteria	1	2	3	4	5
Topic for comparison	My information <b>rambles</b> and fails to pinpoint one aspect for comparison/contrast. I provided <b>no</b> details.	I <b>mention one</b> topic of comparison/contrast. I give <b>few</b> details.	I <b>describe</b> the topic for comparison/contrast. I give <b>some</b> details.	I <b>clearly define</b> topic for comparison/contrast. I give <b>specific details</b> .	I <b>define with clarity and creativity</b> the topic for comparison/contrast. I give <b>many specific details</b> .
Information unique to each territory	I makes <b>no</b> mention of any unique information.	I give <b>very little</b> information.	I give <b>some</b> information that is unique for each case.	I give a <b>great deal of unique and interesting</b> information.	I offer an <b>abundance of pertinent and thought-provoking</b> information.
Gives information on similarities/ differences between territories	I <b>do not</b> compare/contrast the two territories.	I <b>only point out one or two</b> ways that are similar/different.	I point out <b>several</b> ways that the two are similar/different.	I show in <b>many</b> ways that the two are similar/different.	I outline a <b>multitude of insightful</b> similarities and differences between the two territories.
Organization	Lacks topic sentences in every item. The sections follow <b>no</b> logical sequence.	Of all the items, <b>only one</b> has a topic sentence and the sequence of the sections is confusing.	Only <b>some</b> items have a topic sentence and the sections are <b>somewhat</b> sequential.	<b>Every</b> item begins with a clearly stated topic sentence followed by a <b>logical sequence</b> .	A topic sentence <b>precisely</b> defines each item and leads to a <b>logical sequence</b> .



# 4 PART

## TO CREATE A PROGRAM AND FORECAST THE FUTURE



IN WHAT WAY IS THE WATER CRISIS A GLOBAL ISSUE?

### TIME

± 200 minutes



### CROSS-CURRICULAR COMPETENCIES:

Personal and Social competencies

To cooperate with others



### SUBJECT-SPECIFIC COMPETENCY

Construct his/her consciousness of global citizenship

Recognizes possible solutions to the global issue

Shows that the commitment of communities is essential for solving global problems.

Defends his/her position

### MATERIALS NEEDED



A. Student Logbook

B. Drawing and Craft Tools

# ACTIVITY 4.1

(Work done individually)

You are the Director of the Montreal Water Management Department. The summer of 2022 has been unusually hot, and the city is experiencing a severe shortage of water. Draw up a program that will hold each Montrealer accountable for addressing the water crisis by adopting daily specific measures.

Upon your request, Statistics Canada sent you the following data.

<b>USAGE OF WATER BY MONTREALERS</b>		
Each Montrealer consumes 400-500 liters of water a day which is equivalent to about 1440 cans of soft drink.		
Consumption of water	Liters	Percentages
Drinking and cooking	4-5	1
Baths and showers	76-95	19
Laundry dishes, cleaning	80-100	20
Toilets	120-150	30
Garden, car wash, pool	120-150	30

Your program proposal has to cut in half the water consumption, while retaining the quality of life enjoyed by Montrealers. The proposed measures must be simple, easily performed, effective and ecologically friendly, e.g. take a shower instead of a bath and install an efficient showerhead.

Give reasons for your choices.

Integrate the following concepts into your essay: metropolis, urban sprawl, density. Remember to justify your opinion by referring to the research documents you consulted.







## ACTIVITY 4.3

((Work done individually))

1. The message of the Gazette article (March 11th, 2007) is so important for the survival of life itself on the planet that each one of us should make an effort to let its content be known.
2. What can a teenager do to help? He/she can write an informative and appealing pamphlet to be distributed in the school and/or community. The pamphlet the students are about to create should carry the message of the article. Although they must not copy any part of the article, they may paraphrase a few lines and no more. The rest should be the result of their own research.

The Gazette, Montreal, Sunday, March 11, 2007.

# EXPECT WATER SHORTAGE IN 20 YEARS

'CHANGES NOW AFFECTING EVERY CONTINENT'

**Hundreds of millions could face starvation by 2080, world's top scientists predict**

Seth Borenstein  
ASSOCIATED PRESS

Washington – The harmful effects of global warming on daily life are already showing up, and within a couple of decades hundreds of millions of people won't have enough water; top scientists will say next month at a meeting in Belgium.

At the same time, tens of millions of others will be flooded out of their homes each year as the Earth reels from rising temperatures and sea levels, according to portions of a draft of an international scientific report...

The report offers some hope if countries slow and then reduce their greenhouse gas emissions, but it notes that what's happening now isn't encouraging...

Many – not all – of those effects can be prevented, the report

says, if within a generation the world slows down its emissions of carbon dioxide and if the level of greenhouse gases sticking around in the atmosphere stabilizes.

If that's the case, the report says, "most major impacts on human welfare would be avoided, but some major impacts on ecosystems are likely to occur."

# COMPOSITION OF YOUR PAMPHLET

## GENERAL

Fold into 3 equal parts a 8"X11 1/2" sheet.

## COVER PAGE

The students should:

1. make the cover as attractive as possible, concentrate on appropriate visuals and be succinct with words;
2. try to come up with a catchy title;
3. remember that the appeal generated by the cover should become a lure for the reader to look further into the pamphlet.

## TEXT

The text should consist of a small essay of 200 to 250 words.

Students should consider:

1. taking a firm and confident position on the issue of "The water crisis as a global issue";
2. writing in a compelling and engaging manner, so that the reader is convinced;
3. developing the topic with information based on research (Internet, school, library, public library etc);
4. creating arguments that flow smoothly. It will give power to the theme being presented;
5. editing the work.

## ILLUSTRATIONS

Only 4 or 5 pertinent illustrations should be used.

**GOOD LUCK  
AND BE CREATIVE!**

RUBRIC FOR WRITING A PAMPHLET OR AN ESSAY

Criteria	1	2	3	4	5
Purpose	I am <b>unsure</b> about the issue.	I <b>offer</b> an opinion.	I <b>take position</b> on this issue but am not sure.	I <b>take a firm position</b> on the issue .	I am <b>confident</b> in my position on the issue.
Research	I am <b>not</b> clear about my position.	I <b>do not know</b> what the audience wants to know.	I used a <b>few</b> ideas from research.	I <b>used</b> my research in my work.	My research was <b>important</b> for my work.
Organization	My ideas are <b>vague</b> .	My work is <b>not very easy</b> to follow.	My work is <b>fairly easy</b> to follow and connects to topic.	My work <b>easily</b> flows and stays on topic .	My work <b>flows</b> smoothly and gives power to the topic.
Development	I have <b>no</b> ideas to develop.	My ideas are <b>not always</b> clear.	My ideas are <b>clear</b> .	My ideas are <b>interesting</b> .	My ideas are <b>well developed</b> .
Editing	I do <b>not</b> edit my work.	My editing does <b>not always</b> work.	I pay <b>some</b> attention to editing.	My editing <b>improved</b> my writing.	My editing was <b>effective</b> and my work is easy to read .

# CREDIT AND REFERENCES

## Page numbers on teacher guide:

**The Mojave Desert**, p. 27, 1. Satellite image of the Mojave Desert and Los Angeles, Earth Sciences and Image Analysis Laboratory, NASA Johnson Space Center. 2 & 3, United States Geological Survey.

**Cold Deserts**, p. 20, 1a & 1b, Kangaroo rat and Lichen, Dr. Lloyd Glenn Ingles, © California Academy of Sciences. manzanita@calacademy.org. 2 & 3, Satellite image of Patagonia, courtesy NASA U.S./Japan ASTER Science Team.

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**The Sahara Desert**, p. 21, 1. Sahara desert as seen from space, Nasa Earth Observatory 2. Dromedary, Sahara desert, Wikimedia.

**The Kalahari Desert**, p.26, Satellite image of Dust Storm, NASA. 2. Meerkat, Muriel Gottrop, Wikimedia (April 2005). 3. Fairy Wren, LiquidGhoul, Wikimedia.

**The Simpson Desert**, p.25, 1. Wikimedia. 2. Camels in the Simpson desert, 1936, Wikimedia. 3. Satellite image of a dust storm, NASA.

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**The Desert of Death**, p.23, 1. A Tarim Basin mummy, Aurel Stein, circa 1910, Wikimedia. 2. Dust Storm in Taklamakan from space, June 25, 2005, NASA.

**Aerial View of Montreal**, p.32, © Ron Clarke, consultant Lester B Pearson School Board.

**Satellite View of Montreal**, p.33, RADARSAT-1 data, Canadian Space Agency, 1999.

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