



Pedagogical kit for The Migration of the Ibanes comic book



Initiation to Sustainable Development

Teachers

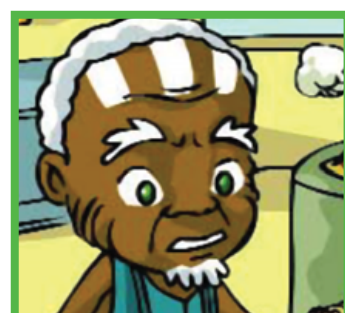
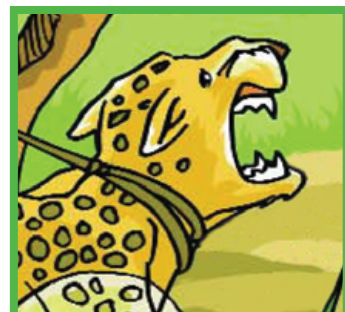
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Addresses and
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The comic book as well as the teacher and student kits are available through:

- The International Polar Foundation (IPF) ;
- Foundation for Education and Development (FED).



What is Sustainable Development?



Sustainable
Development

The origins of « sustainable development »

Sustainable development corresponds to the desire for a new vision of society; a vision hoping to correct the excesses of a lifestyle of development whose limits have been perceived since the early 70s (The United Nations Conference on the Human Environment, Stockholm 1972). It was during those years that concern began over certain economic activities generating visible and localised environmental distress (waste, smokestacks, pollution of waterways, etc...). At that time, those responsible were still easily identifiable.

During the 80s, the existence of pollutants and global deregulations such as the hole in the ozone layer, acid rain, desertification, climactic changes and deforestation, were discovered and communicated to the public. While these assaults on natural areas were widespread, their origins (link between cause and effect) and those responsible could no longer be easily identified.

On an economic and social scale, it appears that the politics of the last twenty years maintained and even accentuated the inequalities between rich countries and poor countries, as well as between rich populations and poor population within a given country, region and even city. The growth of the inequalities has driven to exclusion and the creation of a dual society. The doctrine behind economic growth puts man at the service of producing goods when he should be at the center of a development process destined to respond to his fundamental needs and ensure his well being.

Man is pursuing an exploitation of natural resources that cannot continue without causing irreparable degradation to our immediate as well as global environment. It is imperative that economic development no longer be conceived, today or in the future, without taking into account social progress (fight against inequalities) and the preservation of the environment (long term management of natural resources), thus underlining what is meant by sustainable development.





What is Sustainable Development ?

Definition

Definition of Sustainable Development (SD)

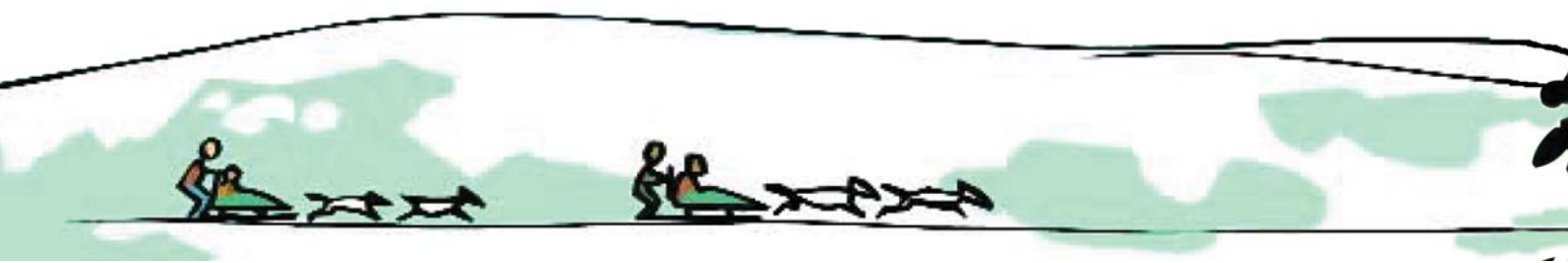
In 1987, the World Commission on Environment and Development (the Brundtland Commission), agreed on a definition of sustainable development that is now generally recognised as the standard: «Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs».

Today, the notion of sustainable development is often illustrated using three circles representing environmental, economic and social dimensions and situated on axes of time and space. The illustration summarises the following observations:

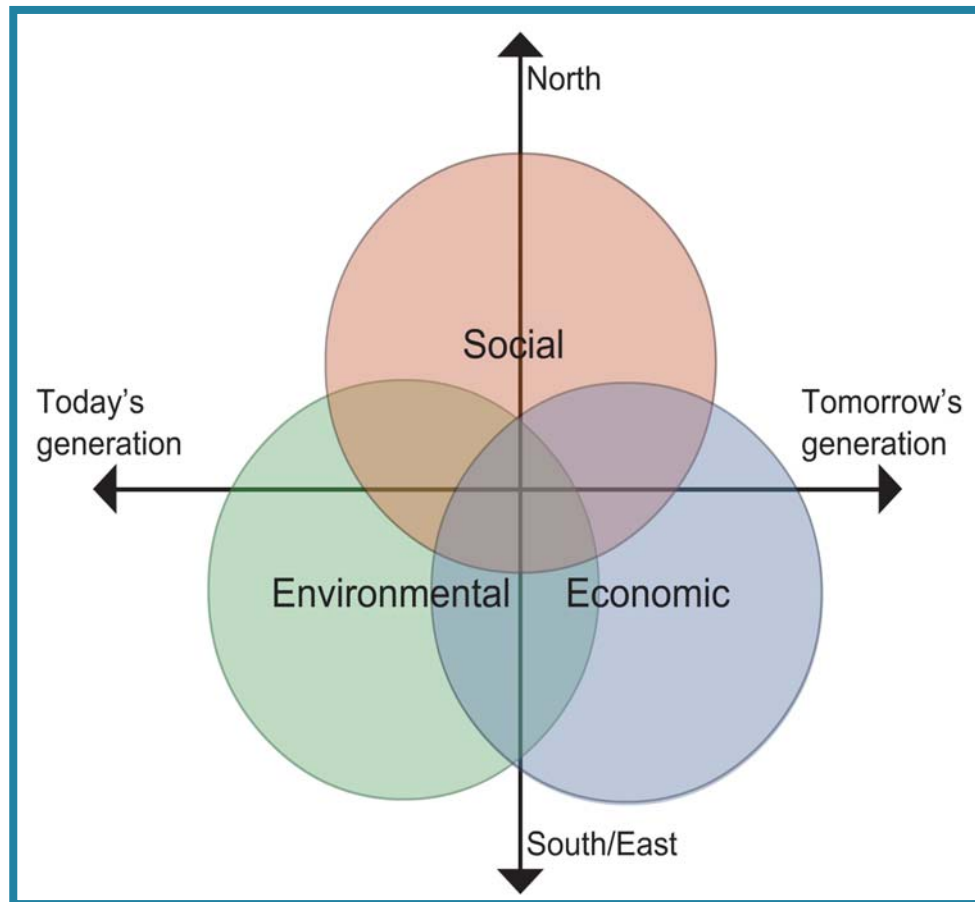
- Economic, social and ecological processes are interdependent. Private as well as public actors should never act in an isolated or unilateral way, but always take into account the interdependence of the three dimensions: environmental, social, economic.

Sustainable development has a much wider scope than environmental conservation alone. To satisfy our needs, both material and immaterial, we require economic prosperity and solidarity within society.

- Long term effects of current interventions need to be taken into account (time and intergenerational dimensions) in order that future generations also be able to satisfy their needs.
- Geographic interdependencies (north-south aspect) must be considered. From an environmental point of view, current lifestyles from industrialised countries cannot be transposed on all countries. On the long term, sustainable development is tasked with improving the quality of life for a large part of humanity.
- What's more, sustainable development rests on fundamental principles (i.e. principle of participation, principle of precaution, etc.) that must be considered during the research for, and applications of, sustainable development. Through these fundamental principles we can see a certain number of the values essential for the respect of human rights.



What is Sustainable Development ?



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A Few Principles of Sustainable Development

A Few
Principles

The Rio Declaration on Environment and Development, adopted in June 1992 by representatives of 180 countries participating in the Earth Summit, recommends several guiding principles. These principles are meant to guide actions, policies, laws and regulations in order to achieve the three fundamental objectives of sustainable development: maintaining environmental integrity and the sustainable use of species and ecosystems; improving social equalities; and improving economic efficiency in a perspective of social and ecologic responsibility.

Principle of Precaution

"Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation"





What is Sustainable Development?

A Few Principles

Regarding an activity, measures can consist of reducing or even ceasing the activity. Regarding a product, measures can consist of banning the product. This holds true even when formal proof linking cause and effect between the activity or product and the presumed consequences have not been irrefutably established.

Principle of Economy and Proper Resource Management

Sustainable development recommends that the Earth's natural resources be conserved and managed in order for their durability to be insured.

Principle of Individual and Collective Responsibility

Sustainable development states that nothing is inevitable and therefore through individual and collective activities, people must take responsibility for their actions as consumers.

Principle of Participation

Sustainable development specifies that in order to guarantee the needs of future generations, it is necessary that individuals make a personal engagement towards action.

Principle of Solidarity in Time

Sustainable development allows for current day needs to be satisfied without compromising future generations from being able to satisfy theirs (intergenerational dimension).

Principle of Solidarity in Space

Sustainable development should guarantee the satisfaction of needs and an equal distribution of resources on a global scale (spatial dimension).

Sustainable development requires a change in our economic systems and in our lifestyles. The change is necessary in order to reduce our consumption of natural resources to a level that can be maintained on the long term all the while preserving an economy aimed at an improved, global distribution of the world's resources. Through all our activities, we must find the balance between these issues while considering the future of all the inhabitants of our planet.



What is Sustainable Development ?



In Latin,
Agenda means
« what needs to
be done », 21
refers to the 21st
century.

Agenda21

Agenda 21 is a plan of action for the 21st century issued out of recommendations from the United Nations and ratified during the Rio Conference in 1992 by more than 170 heads of state and governments. It was completed during the Johannesburg Summit in 2002. Agenda 21 is a key instrument for implementing sustainable development and is presented as a programme of commitments for the 21st century. The 178 states present adopted a collection of objectives in favour of sustainable development called "Agenda 21". Amongst other things, it foresees local collectives elaborating, in collaboration with their own populations, concrete action plans; "local Agenda 21". Since Rio, thousands of local collectives throughout the world have begun an Agenda 21 process. The education sector is equally concerned by the implementation of local Agenda 21s. The Rio and especially Johannesburg conferences, managed to shed the light on the important role education plays in achieving sustainable development.

Decade of Education for Sustainable Development

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Since 1985, the United Nations have been launching international decades in order to draw attention to important questions and to favour international action. 2005 to 2014 is the "Decade of Education for Sustainable Development" (DESD). "The goal of the decade is to promote education as a fundamental need in a humane and sustainable society and to reinforce international cooperation aimed at the elaboration of innovative policies, programmes and practices for an Education for Sustainable Development".

« This new vision of education emphasizes a holistic, interdisciplinary approach to developing the knowledge and skills needed for a sustainable future, as well as the necessary changes in values, behaviour, and lifestyles. »

(UNESCO, www.unesco.org, 2005)





What is Sustainable Development ?

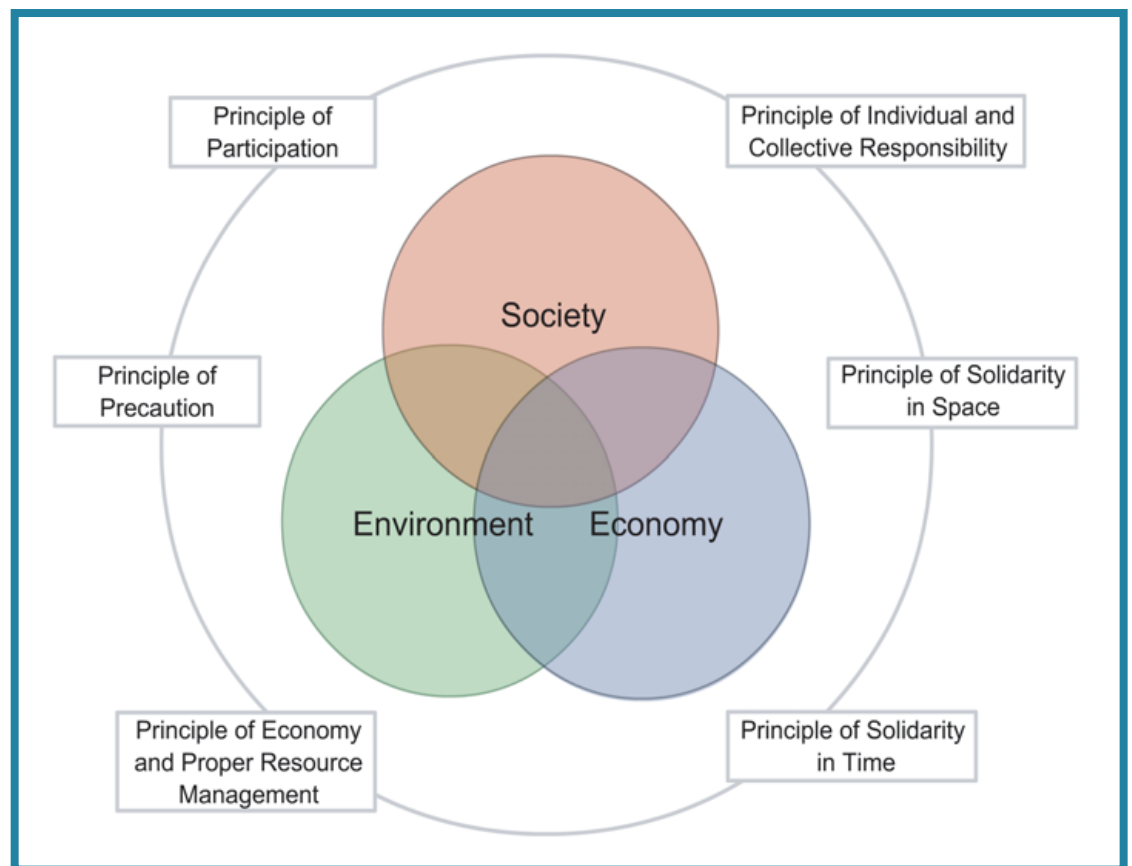
In brief, sustainable development can be considered as:

- a goal for society: preparing a better future for all;
- an analysis tool: for analysing a given situation by taking into account the three dimensions (environmental, social, economic) and their interdependencies by situating them in time and space. Also, never forgetting to consider the principles of sustainable development and the values attached.

This kit suggests you make use of this tool (see diagram below). We are convinced that this methodological approach will allow children and adults alike to take a stance by understanding the situation and will encourage “the conscience, the actions and the identity of a global citizen” to emerge.

To use this kit, you will need three lenses corresponding to the three dimensions of sustainable development, a space-time vessel and thread to weave the links between the different issues regarding our society.

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Theoretical background on Tropical Deforestation



There exists approximately 2 billion hectares of tropical forest in the world out of the 3.5 billion hectares of forest worldwide. Each year between 14 and 16 million hectares of the tropical forest are lost (annual loss in 2000: Brazil 2 550 000 ha, Indonesia 1 090 000 ha, People's Republic of Congo 740 000 ha, Bolivia 580 000 ha, Mexico 510 000 ha, Venezuela 500 000 ha, Malaysia 400 000 ha, Myanmar 390 000 ha, Sudan 350 000 ha, Thailand 330 000 ha, total within these ten countries alone: 7 430 000 ha). These losses represent 3.5 times the size of Switzerland or 27 hectares destroyed every minute (six football fields every 10 seconds).

Just one hectare of tropical rain forest can be home to up to 500 species of trees, bushes and vines, while all of the tropical and equatorial forests together shelter more than 50% of the planet's animal and plant species.

What actors are directly involved in deforestation?

- Farmers who practice slash and burn agriculture ;
- Large scale stock breeders who clear cut to make pastures;
- Forestry groups who plant fast growing trees like eucalyptus (between 1990 and 1997 in Africa, 3.7 million hectares of forest were lost) and who add to the destruction of the forest by building roads;
- People collecting wood for heating;
- Companies specialising in infrastructure (mines and petrol);
- People building Hydro-electric dams;
- Farmers replacing the original forests in order to develop monocultures (soy, palm oil, coffee, cocoa, etc.).

Factors that increase/support deforestation are:

- poverty;
- lure of profit;
- desire for power;
- growing demographics;
- inadequate public policy: governmental corruption and external debt reimbursement forcing farmers to exploit rather than conserve local resources;
- market influence on national and global levels.

« The economic and environmental consequences of deforestation are profound, making it one of the most critical issues facing our global society. »

<http://www.rcfa-cfan.org>





Theoretical background on the Polar Arctic Situation

Between 1981 and 2003, measures performed by satellite to calculate surface¹ temperature detected that above the 60° northern latitude, there has been an average increase of 0.5°C per decade (up to 0.79°C in North America and 0.85°C in Greenland).

These measures need to be compared to the mathematical models of the IPCC (Intergovernmental Panel on Climate Change bringing together over 1 000 scientists from around the world). These models forecast an increase in the Earth's average temperature between 1.4°C to 5.8°C, depending on the scenario, by the year 2100 (IPCC, 2001). This warming is 2 to 10 times higher than the one recorded during the 20th century, which marks a first since the end of the last ice age, less than 10 000 years ago.

The models predict an increase twice as high for the Arctic region. The 2004 ACIA report (Arctic Climate Impact Assessment) confirms the prediction, indicating an increase between 5°C and 7°C for the coming century². The warming currently recognised is happening twice as fast compared to the average in the other regions of the globe.

In the decades to come, the effects already underway from the melting of the arctic permafrost (soil in a frozen state) will concern increasingly vast areas. The softening of the ground will create instability around the exposed terrains, endangering diverse human installations: villages, roads or pipelines for example. What's more, the permafrost defrosting will free large quantities of methane, a gas that is a large contributor to the greenhouse effect. The frozen underground of the Arctic tundra contains, through several metres of depth, an enormous quantity of biologic substances that will begin to decompose. The current warming will unleash a vicious circle, or positive retroaction, since the freed methane will in turn accelerate the increase of global temperatures.

Today, the Arctic is the region of the globe where climactic changes are the most visible: winters are already less harsh; spring arrives earlier; new species of insects and flowers, emerging from the south, appear; and the elders from indigenous populations are losing their ancestral bearings that allowed them to forecast weather. On top of all that, the ice shelf – the frozen area of the ocean – thins and recedes each year. Since the 50's, the ice shelf has diminished by 40% (according to the IPCC) and this phenomenon is currently accelerating. With the retreat of the ice shelf in the North Pole, the Arctic Ocean, a natural reflector (80% of the sun's light is reflected back to space), will transform into a heat receptor, reflecting only 10% and keeping 90% of the sun's energy. The global warming in that area will be amplified, in turn accelerating the melting of the ice shelf, illustrating another example of positive retroaction.

This phenomenon might also radically affect the entire circulation of oceanic currents. Each winter salt is released into the ocean as the ice shelf freezes, increasing the density of cold water at the surface. The increased density pulls the surface cold water towards the bottom of the ocean. The disturbance to the mechanism of currents can cause a deviation and even a halt to the Gulf Stream (a warm current coming from the tropics responsible for Europe's moderate temperatures)³. Paradoxically, within a planetary global warming context, this could cause a cold front in Europe.

¹: <http://www.aip.org/>

²: Vital Arctic Graphics ISBN 82-7701-033-8

³: <http://www.wwf.ch>, climate section



Selection of Activities



The first activities in the kit will allow you to progressively sensitise your students to the principles of sustainable development.

Modules

- 1 The three dimensions for analysing sustainable development
(Pages 2 to 5 in the student kit)

General Objectives:

- Distinguish three analytical dimensions of sustainable development;
- Link social, environmental and economic dimensions to a concrete situation.

- 2 Different actors
(Pages 6 and 7 in the student kit)

General Objectives:

- Use qualifiers for describing characters;
- Change perspectives

- 3 Individual and collective responsibility
(Page 8 in the student kit)

General Objective:

- Identify different actors and determine their interest in changing (or not changing) a situation.

- 4 Deforestation
(Page 9 in the teacher kit, pages 9 and 10 in the student kit)

General Objective:

- Develop a critical approach and an objective perspective.

Roll Play

- 5 Roll Play « Deforestation »
(Pages 15 to 18 in the teacher kit, page 11 in the student kit)

- 6 Roll Play « Climactic Changes in the Arctic »
(Pages 15 to 18 in the teacher kit, page 12 in the student kit)





Selection of Activities

Photo-language

7 Photo-language

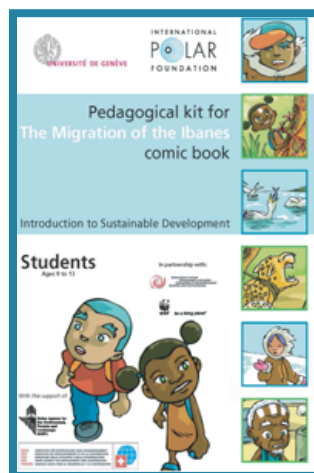
(Pages 13 and 14 in the teacher kit, pages 13 and 14 in the student kit)



Material

Student kit and the comic book « Migration of the Ibanes »

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Place

- in class

Duration

- approximately 60 minutes per module



Photo-language



Photo-language

The suggested photo-language offers the opportunity to reflect on a range of issues to be treated in a systematic way. The goals of these activities are to develop observation and analytical skills in the student and initiate opinion debates.

Classify the illustrations

In groups of two, the students classify the illustrations with respect to a criteria pre-defined by the group. The students explain their choices and listen to those of their classmates.

Identify the issue

In groups of two, the students observe the 10 proposed illustrations. They should attempt to identify the issues by giving a title to each illustration and describing the situations in several words.

From the comic book, students identify other illustrations that could initiate a “sustainable development” process.

Expression

Individually, students choose an illustration that they either relate to or feel no affinity with (one they like, one they dislike). They explain their choice to their classmates. Each student creates a poster with their chosen illustration.





Photo-language

Going further

At the end of the classification, identification and expression exercises, another exercise consists in suggesting to the students to come up with solutions, by imagining a world where the difficulties outlined in Halaya and Alibert's adventure are resolved using the following process:

1. Identifying the situation and issues
2. Comparative analysis with respect to the principles of SD
3. Reviewing the current legitimate interests of the actors involved and confronting the different points of view
4. Reviewing current values followed by individual prioritisation
5. Individual and collective positioning

This "pedagogical chronology" is a main instrument used in Education for Sustainable Development. It can be used in other situations.



Roll Play



Roll Playing
Games

Climactic
Changes and
Deforestation

The proposed roll playing games touch issues linked to either deforestation or climactic changes in the Arctic. The goals of these games are to collectively, imagine and propose solutions and come to a consensus.

Specific Objectives

- Identify the principle protagonists of a given situation
- Identify one or several interests and needs of each of the protagonists
- Categorise the different interests mentioned using one of the three circles of sustainable development
- Understand that a given action can be motivated by several interests and/or needs and involves several actors
- Understand that in order to attain a development that is sustainable, it is important for all societies to find a balance between the three dimensions and not focus on only one
- Be able to recognise the legitimacy of everyone improving their living conditions
- Understand the importance of co-development
- Show creativity in finding a consensus between different actors.

Identifying the Characters

After reading the comic book, the teacher proposes that the students participate in a roll playing game that will encourage them to share their representations of the themes uncovered during the reading.

In order to proceed, the students are asked to identify, on a piece of paper, the different characters encountered in pages 8 and 40, for issues surrounding climate change in the Arctic, and pages 24 through 33, for issues surrounding deforestation. Once all the characters have been identified, the teacher should ask the students to describe each character's objectives.

The teacher can then ask the students to classify the objectives in one of the three circles representing the dimensions of sustainable development.





Roll Play

Preparation

Each student selects a card for the roll playing game (Pages 11 and 12 from the student kit). Certain cards represent characters directly encountered in the comic book; others are indirectly related to the story.

All students with the same card form a group. They read their card and think about the position they will need to defend during roll play. Before beginning the actual roll play, research should be done (school library, Internet, CD-ROM, questioning people in close proximity, etc....), in order for the students to understand the opinions and points of view corresponding to their roles. The students prepare a short exposé to communicate their position and arguments as clearly as possible to the rest of the class. Finally, each group prepares a document (a poster for example) resuming their positioning.

Each group explains the position they are defending through a brief exposé based on the document they prepared.



Beginning the scenario

An initial scenario is defined by the entire class. For example, imagine that the director making furniture wants to cut down a new area of the tropical forest situated on the reserve, in order to increase production.

Scenario

Each group designates one student to participate in the debate.

A timekeeper can also be chosen amongst the students. His roll will be to limit the exchanges to a fixed time. The length of time can either be imposed (varying in length depending on the number of participants in the scene), or it can depend on the quality of proposed arguments (redundant arguments could invite the timekeeper to call an end to the debate). In the latter, the length of the debate will depend on the pertinence of the arguments brought forth by the students.



Roll Play



A game-master is selected (depending on the age of the students, the teacher can assume the roll). Under the direction of the game-master, the delegates debate the selected issue all the while defending the position corresponding to their roll. The other students follow the discussion. If one of the students (not part of the delegation) feels the character was misrepresented or that an important argument was forgotten, they can ask the game-master for permission to intervene. A limit can be set (one or two interventions per group) in order to prevent too many interruptions. The game-master should attempt to orient the debate towards the construction of a collective solution in the spirit of co-development.

The game-master ends the discussion when the debate fades, when there are no new arguments or when solutions are put forth.

Variation: The teacher throws a die and the number determines how many characters will take the stage. The players are selected randomly and the concerned groups designate one of its members to participate in the debate. The goal of this variation is to show that the more characters there are defending their various interests, the more the debate becomes complex.

For each scene, the characters that participated and the arguments that each one put forth to defend their point of view should be noted on the blackboard.

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Synthesis

Once the roll play is over, a synthesis will help analyse the different positions. The arguments should be organised with regards to the different themes; deforestation or climactic changes in the Arctic.

A few risks and changes that could emerge:

Modifying cultural components (rift in knowledge transfer; population displacement linked to the creation of reserves concerning deforestation, or the melting of the permafrost concerning the Arctic; risks of standardising cultural values from the invasion of a foreign culture, loss of autonomy of local government); Destabilising order and ecosystems; Loss of biodiversity; Unknown risks from genetic manipulations; Irresponsible environmental management; Risk of foreign enterprise invading to exploit natural resources; Changes to local economic fabric.





Roll Play

Thoughts on sustainable development

To conclude the roll playing game, it is important to reflect on the dimensions of sustainable development. Each argument should be positioned in one of the three circles representing the dimensions of sustainable development.

It is important for students to understand that the motivation behind the diverse behaviours, inherent in the different rolls, stems from the same thing; wanting to improve quality of life. The goal is for students to be able to go beyond this realisation and imagine ways to improve “quality of life for all” while preserving socio-cultural uniqueness and by favouring access to economic resources and by preserving the environment.

Transposing

It would be beneficial to repeat this activity using different issues.

For example, using the scene on the reserve – pages 14 to 21:

- The poachers: capture a deer to sell and make a bit of money;
- The guards on the reserve: protect the flora and fauna;
- The bus driver: satisfies his clients for his company to stay profitable;
- The children: collect plants to cure sick monkeys.

It is also necessary to apply this process to local situations that the students can identify with, for example the purification of a water source or regional planning, etc...





Resources and links

*The resources listed below are translated descriptions of teaching materials published and available in French

Climate

Climate

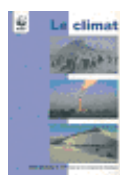
Régions polaires et changements climatiques – CD-ROM – ages 11 to 13, International Polar Foundation, 2005.



An educational CD-ROM containing 24 flash animations for a better understanding of Polar Regions and other phenomena linked to climactic changes.

The International Polar Foundation

Le climat – Teaching document- ages 11 to 13, WWF Switzerland, 2004.



A teaching kit to familiarise students with the complex questions concerning the climate (meteorology, the green house effect, climate changes) and the impact our daily consumptions have on the planet.

WWF Switzerland

1 degré de + – ages 7 and up – WWF France, 2003.



This is a package about climactic changes. It approaches scientific concepts providing understanding, gives teaching tracks inciting to action and reports on current opinions to be debated.

WWF France

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Forest

Forest

La forêt tropicale – Teaching document – ages 11 to 13, WWF Switzerland 2001.



A teaching kit on consumerism and sustainable development for students to discover that our way of consuming has repercussions on the tropical forests of the planet.

WWF Switzerland

Ecologic Footprint

Ecologic Footprint

- <http://www.agir21.org/flash/empreintecoweb/loadcheckplugin.html>
- http://www.wwf.fr/empreinte_ecologique/
- <http://www.climat.be/fr/empreinte.html>

These documents are available through the institutions mentioned on page 2.



Resources and links



Sustainable
Development

Sustainable Development

Vers le développement durable – Teaching document- ages 8 to 13 – LEP Editions, 2001

This kit presents twenty activities and projects from Swiss schools. The introduction provides a definition of sustainable development and what it means for schools. The annex offers useful addresses and a check list to facilitate project elaboration.

FED



Terra - Game –ages 10 and up - UNESCO, 2003

This game confronts players with ecologic, military or socio-economic crises. Players must collaborate to preserve a balance all the while defending their personal interests. Each player must manage the use of his resources for the well being of all.

FED



Atlas mondial du développement durable – Teaching document – ages 11 to 13, Autrement, 2002

How can conservation of the environment, social equality and economic efficiency be reconciled? Ten years after the Earth Summit in Rio de Janeiro, this atlas combines socio-economic, geopolitical and environmental data across forty maps and seventy computer graphics.

FED



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Consumerism

Consumerism

Mon enfant et la consommation - Livre Enseignant - Editions Jouvence, 2001

The authors discard the base of an education towards consumerism. It is a new reference to be integrated in our roll as parents and educators to allow children to fully express themselves in our society.

FED



Le commerce équitable - Brochure - ages 11 to 13 - BT, 2004

This is a brochure sensitising youth on North-South relations and have them think about the integration of developing countries into a world economy, develop critical thinking about our lifestyle as consumers and to actively participate in the evolution of society.

FED



Des bulles dans le commerce - BD - ages 11 to 14 - GRAD, 2004

This engaging comic book produced by 5 artists from French-speaking Switzerland, shows how the current organisation of the global market is often at a detriment to producers and consumers. It encourages a more responsible mode of consumption.

FED

