

Toolkit On Environmental Education and Education for Sustainable Development

The Project “Lebanese Youth as Messengers for Sustainability”
Initiative to promote a culture of sustainability among the Lebanese
children and young, their families and the local communities
2014-2015



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Who is this guide for?

This guide is intended for social studies teachers and it can be used by science and other discipline teachers of the second and third levels. It helps teachers to integrate the goals of education and sustainability within their courses.

Guide subject and goals

This guide is intended to provide teachers with references about sustainable development, its goals and themes. It describes the ways and means by which teachers can easily integrate the goals of education for sustainable development with the learning objectives of their curriculum. The provided educational materials respect modern teaching methods based on the principle of active learning.

How to use this guide?

This guide is divided into three sections in three different languages, so that every section contains an introduction describing sustainable development, its history, evolution, and references of knowledge about them. The following activities provide practical means for the education for sustainable development topics and useful websites.

Methodology of writing this guide

This guide includes materials used during the training workshops for teachers of social studies that took place in the Bekaa, Beirut and North Lebanon, as well as references and resources available on the websites of universities or research institutions connected to the subject of education for sustainable development.

Table of Contents of the Teacher's Guide

1. Sustainable Development.....	4
1.1. Definition.....	4
1.2. Historical background.....	4
1.3. Values and principles.....	6
2. Education for Sustainable Development.....	8
2.1. Definition.....	8
2.2. Historical background.....	8
2.3. Objectives and dimensions.....	9
2.4. Techniques and teaching methods to achieve the educational goals of sustainable development.....	9
a. Experiential learning.....	10
b. Story telling.....	10
c. Values education.....	10
d. Role play.....	10
e. Community problem solving.....	11
f. Project Based Learning.....	12
g. Debate strategy.....	12
h. Class discussion.....	12
i. Think-Pair-Share.....	12
j. Jigsaw strategy.....	13

3. Topics.....	15
3.1. Pollution.....	15
3.2. Climate Change.....	19
3.3. Biodiversity.....	20
3.4. Natural resources and Energy.....	21
3.5. Population Growth.....	24
3.6. Poverty.....	26
3.7. Gender Discrimination.....	28
3.8. Youth and Development.....	30
3.9. Green Economy.....	32
4. Extra-curricular activities.....	34
4.1. How to start an environmental club	34
4.2. Field trips.....	36
4.3. Environmental play.....	40
4.4. Useful Links.....	42
5. The list of sources and references.....	43
6. Annexes.....	44
6.1. Annex 1: National and International Days.....	44
6.2. Annex 2: Natural Reserves.....	45
6.3. Annex 3: Manual of Recycling.....	46

1. Sustainable Development

1.1. Definition

Sustainable development is defined by the Brundtland Commission as “meeting the needs of current generations without compromising the ability of future generations to meet their needs”. There are three core pillars of sustainable development: the environmental, the economic, and the social. Sustainable Development is wider than a focus on “environmental concerns”. It involves harnessing the efforts of those working in a number of diverse policy areas that range from natural resource management and climate change to issues such as social inclusion, protection of human rights, promotion of interculturalism, development of sustainable transport, as well as efforts to ensure social justice and equality.

1.2. Historical Background

The History of Sustainable Development in the United Nations:

➡ **1972:** The United Nations Conference on the Human Environment held in Stockholm brought the industrialized and developing nations together to delineate the “rights” of the human family to a healthy and productive environment. A series of such meetings followed, e.g. on the rights of people to adequate food, to sound housing, to safe water, to access to means of family planning. The recognition to revitalize humanity’s connection with Nature, led to the creation of global institutions within the UN system.

➡ **1980:** The International Union for the Conservation of Natural Resources (IUCN) published the World Conservation Strategy (WCS) which provided a precursor to the concept of sustainable development. The Strategy asserted that conservation of nature cannot be achieved without development to alleviate poverty and misery of hundreds of millions of people and stressed the interdependence of conservation and development in which development depends on caring for the Earth. Unless the fertility and productivity of the planet are safeguarded, the human future is at risk.

➡ **1982:** Ten years later, at the 48th Plenary of the General Assembly in 1982, the WCS initiative culminated with the approval of the World Charter for Nature. The Charter stated that "mankind is a part of nature and life depends on the uninterrupted functioning of natural systems".

➡ **1983:** The World Commission on Environment and Development (WCED) was created and, by 1984 it was constituted as an independent body by the United Nations General Assembly. WCED was asked to formulate “A global agenda for change”. In 1987, in its report “Our Common Future”, the WCED advanced the understanding of global interdependence and the relationship between economics and the environment previously introduced by the WCS. The report wove together social, economic, cultural and environmental issues and global solutions. It reaffirmed that "the environment does not exist as a sphere separate from human actions, ambitions, and needs, and therefore it should not be considered in isolation from human concerns. The environment is where we all live, and development is what we all do in attempting to improve our lot within that abode. The two are inseparable".

1992: In June, the first UN Conference on Environment and Development (UNCED) was held in Rio de Janeiro and adopted an agenda for environment and development in the 21st Century. “Agenda 21: A Program of Action for Sustainable Development” contains the “Rio Declaration on Environment and Development”, which recognizes each nation’s right to pursue social and economic progress and assigned to states the responsibility of adopting a model of sustainable development, and the “Statement of Forest Principles”. Agreements were also reached on the “Convention on Biological Diversity” and the “Framework Convention on Climate Change”. UNCED for the first time mobilized the major groups and legitimized their participation in the sustainable development process. This participation has remained a constant until today. For the first time also, the lifestyle of the current civilization was addressed in Principle 8 of the Rio Declaration. The urgency of a deep change in consumption and production patterns was expressly and broadly acknowledged by State leaders. Agenda 21 further reaffirmed that sustainable development was delimited by the integration of the economic, social and environmental pillars.

The spirit of the conference was captured by the expression “Harmony with Nature”, brought into the fore with the first principle of the Rio Declaration: “Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature”.

1993: UNCED instituted the Commission on Sustainable Development (CSD) to follow-up on the implementation of Agenda 21.

1997: In June, the General Assembly dedicated its 19th Special Session (UNGASS-19) to design a “Program for the Further Implementation of Agenda 21”.

2002: Ten years after the Rio Declaration, a follow-up conference, the World Summit on Sustainable Development (WSSD) was convened in Johannesburg to renew the global commitment to sustainable development. The conference agreed on the Johannesburg Plan of Implementation (JPOI) and further tasked the CSD to follow-up on the implementation of sustainable development.

2009: On 24th December, the UN General Assembly adopted a Resolution (A/RES/64/236) agreeing to hold the United Nations Conference on Sustainable Development (UNCSDD) in 2012 - also referred to as “Rio+20” or “Rio 20”. The Conference seeks three objectives: securing renewed political commitment to sustainable development, assessing the progress and implementation gaps in meeting already agreed commitments, and addressing new and emerging challenges. The Member States have agreed on the following two themes for the Conference: green economy within the context of sustainable development and poverty eradication, and institutional framework for sustainable development. Since UNCED, sustainable development has become part of the international lexicon. The concept has been incorporated in many UN declarations and its implementation, while complex has been at the forefront of world’s institutions and organizations working in the economic, social and environmental sectors. However, they all recognize how difficult it has proven to grant the environmental pillar the same recognition enjoyed by the other two pillars despite the many calls by scientists and civil society signaling the vulnerability and precariousness of the Earth since the 1960s.

See more at: <http://www.uncsd2012.org/history.html#sthash.vWtpT2TI.dpuf>

1.3. Values and Principles

The Sustainable Development Act defines 16 principles that must be incorporated into the interventions of all departments and agencies. In a sense, these principles are a guide for action within a perspective of sustainable development. They are an original reflection of the principles of the Rio Declaration on Environment and Development, a fundamental text that affirms international commitment to sustainable development.

The principles of Québec's Sustainable Development Act:

- I. **“Health and quality of life”**: People, human health and improved quality of life are at the centre of sustainable development concerns. People are entitled to a healthy and productive life in harmony with nature.
- II. **“Social equity and solidarity”**: Development must be undertaken in a spirit of intra- and inter-generational equity and social ethics and solidarity.
- III. **“Environmental protection”**: To achieve sustainable development, environmental protection must constitute an integral part of the development process.
- IV. **“Economic efficiency”**: The economy of Québec and its regions must be effective, geared toward innovation and economic prosperity that is conducive to social progress and respectful of the environment.
- V. **“Participation and commitment”**: The participation and commitment of citizens and citizens' groups are needed to define a concerted vision of development and to ensure its environmental, social and economic sustainability.
- VI. **“Access to knowledge”**: Measures favorable to education, access to information and research must be encouraged in order to stimulate innovation, raise awareness and ensure effective participation of the public in the implementation of sustainable development.
- VII. **“Subsidiarity”**: Powers and responsibilities must be delegated to the appropriate level of authority. Decision-making centers should be adequately distributed and as close as possible to the citizens and communities concerned.
- VIII. **“Inter-governmental partnership and cooperation”**: Governments must collaborate to ensure that development is sustainable from an environmental, social and economic standpoint. The external impact of actions in a given territory must be taken into consideration.
- IX. **“Prevention”**: In the presence of a known risk, preventive, mitigating and corrective actions must be taken, with priority given to actions at the source.
- X. **“Precaution”**: When there are threats of serious or irreversible damage, lack of full scientific certainty must not be used as a reason for postponing the adoption of effective measures to prevent environmental degradation.

- XI. **“Protection of cultural heritage”**: The cultural heritage, made up of property, sites, landscapes, traditions and knowledge, reflects the identity of a society. It passes on the values of a society from generation to generation, and the preservation of this heritage fosters the sustainability of development. Cultural heritage components must be identified, protected and enhanced, taking their intrinsic rarity and fragility into account.
- XII. **“Biodiversity preservation”**: Biological diversity offers incalculable advantages and must be preserved for the benefit of present and future generations. The protection of species, ecosystems and the natural processes that maintain life is essential if quality of human life is to be maintained.
- XIII. **“Respect for ecosystem support capacity”**: Human activities must be respectful of the support capacity of ecosystems and ensure the perenniality of ecosystems.
- XIV. **“Responsible production and consumption”**: Production and consumption patterns must be changed in order to make production and consumption more viable and more socially and environmentally responsible, in particular through an eco-efficient approach that avoids waste and optimizes the use of resources.
- XV. **“Polluter pays”**: Those who generate pollution or whose actions otherwise degrade the environment must bear their share of the cost of measures to prevent, reduce, control and mitigate environmental damage.
- XVI. **“Internalization of costs”**: The value of goods and services must reflect all the costs they generate for society during their whole life cycle, from their design to their final consumption and their disposal.

These principles and other comparable ones are integrated into the practices of a growing number of government agencies, non-profit or private organizations and those working in fields such as education, business, architecture and construction, research and development, management, etc. They draw inspiration from these principles to improve their methods with regard to access to knowledge, production and consumption, citizen participation and involvement, ecological responsibility, and the ideas to develop new areas of intervention.

See more at: http://www.mddep.gouv.qc.ca/developpement/principes_en.htm

2. Education for Sustainable Development

2.1 Definition

Education for Sustainable Development allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future.

Education for Sustainable Development means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behavior and take action for sustainable development. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way.

Education is held to be central to sustainability. Indeed, education and sustainability are inextricably linked, but the distinction between education as we know it and education for sustainability is enigmatic for many. The following section describes the components of education for sustainability.

ESD carries with it the inherent idea of implementing programs that are locally relevant and culturally appropriate. All sustainable development programs including ESD must take into consideration the local environmental, economic and societal conditions. As a result, ESD will take many forms around the world.

ESD was first described by Chapter 36 of Agenda 21. This chapter identified four major thrusts to begin the work of ESD: (1) improve basic education, (2) reorient existing education to address sustainable development, (3) develop public understanding, awareness, and (4) training. Let's look at each of the four components. Education for Sustainable Development requires far-reaching changes in the way education is often practiced today.

2.2 Historical Background

From the time sustainable development was first endorsed at the UN General Assembly in 1987, the parallel concept of education to support sustainable development has also been explored. From 1987 to 1992, the concept of sustainable development matured as committees discussed, negotiated and wrote the 40 chapters of Agenda 21. Initial thoughts concerning ESD were captured in Chapter 36 of Agenda 21, "Promoting Education, Public Awareness, and Training".

Unlike most education movements, ESD was initiated by people outside of the education community. In fact, one major push for ESD came from international political and economic forums (e.g., United Nations, Organization for Economic Co-operation and Development, Organization of American States). As the concept of sustainable development was discussed and formulated, it became apparent that education is a key to sustainability. In many countries, ESD is still being shaped by those outside the education community. The concepts and content of ESD in these cases are developed by ministries, such as those of environment and health, and then given to educators to deliver. Conceptual development independent of educator input is a problem recognized by international bodies as well as educators.

See more at: http://www.esdtoolkit.org/esd_toolkit_v2.pdf

2.3 Objectives and dimensions

According to UNESCO, ESD is about learning to:

- Respect, value and preserve the achievements of the past.
- Appreciate the wonders and the peoples of the Earth.
- Live in a world where all people have sufficient food for a healthy and productive life.
- Assess, care for and restore the state of our Planet.
- Create and enjoy a better, safer, more just world
- Be caring citizens who exercise their rights and responsibilities locally, nationally and globally.

This represents a new vision of education, a vision that helps people of all ages better understand the world in which they live, addressing the complexity and interconnectedness of problems such as poverty, wasteful consumption, environmental degradation, urban decay, population growth, health, conflict and the violation of human rights that threaten our future.

ESD aims at demonstrating the following features:

- **Interdisciplinary and holistic learning for sustainable development** should be embedded in the whole curriculum, not as a separate subject.
- **Values-driven:** it is critical that the assumed norms - the shared values and principles underpinning sustainable development - are made explicit so that can be examined, debated, tested and applied.
- **Critical thinking and problem solving:** leading to confidence in addressing the dilemmas and challenges of sustainable development.
- **Multi-method:** word, art, drama, debate, experience, different pedagogies which model the processes. Teaching that is geared simply to passing on knowledge should be recast into an approach in which teachers and learners work together to acquire knowledge and play a role in shaping the environment of their educational institutions.
- **Participatory decision-making:** learners participate in decisions on how they are to learn.
- **Applicability:** the learning experiences offered are integrated in day to day personal and professional life.
- **Locally relevant:** addressing local as well as global issues, and using the language(s) which learners most commonly use. Concepts of sustainable development must be carefully expressed in other languages - languages and cultures say things differently, and each language has creative ways of expressing new concepts.

See more at: <http://www.earthcharterinaction.org/download/education/what-is-ESD.pdf>

2.4 Techniques and teaching methods to achieve the educational goals of sustainable development

This set of modules develops professional skills for using teaching and learning strategies that can help students achieve the wide range of knowledge, skill and values objectives of Education for Sustainable Development.

- a. Experiential learning
- b. Story telling
- c. Values education

- d. Role Play
- e. Community Problem Solving
- f. Project- Based Learning
- g. Debate Strategy
- h. Class discussions
- i. Think – Pair- Share
- j. Jigsaw

a. **Experiential learning:** engages students in critical thinking, problem solving and decision making in contexts that are personally relevant to them. This approach to learning also involves making opportunities (scenarios or activities) for debriefing and consolidation of ideas and skills through feedback, reflection, and the application of the ideas and skills to new situations. The idea of experiential learning as a cycle was suggested by prominent educationists such as Jean Piaget, John Dewey and David Kolb.

b. **Story telling:** is an ‘art’ – and sometimes we can feel shy about telling stories in public. However, storytelling is an art that can be developed through practice. To become confident, exciting storytellers, we need to choose ‘good stories’ and to practice the art of telling stories to develop the skill.

c. **Values education:** The challenge for teachers is to develop principles for dealing with values-laden issues in a professional and ethical way. Such principles would acknowledge that avoiding values and controversy when teaching about sustainability is neither desirable nor possible. They would also provide guidance for adopting a positive and optimistic approach to teaching controversial issues with an emphasis on the use of critical thinking skills. Several techniques for teaching about value-laden issues have been developed. Two important ones are values clarification and values analysis.

- **Values clarification**

Values guide our decisions as to what is good, true and right. Thus, they depend as much on our feelings as on our thoughts. Values clarification is a technique for encouraging students to relate their thoughts and their feelings and thus enrich their awareness of their own values.

- **Values analysis**

Where values clarification guides reflection on personal moral dilemmas, values analysis is commonly used with social issues that involve many people and viewpoints. Thus, values analysis is a way of helping students examines other people’s values as well as their own. It requires the use of logical thinking skills to analyze different viewpoints about an issue.

d. **Role play:** it is any speaking activity when you either put yourself into somebody else’s shoes, or when you stay in your own shoes but put yourself into an imaginary situation. Role-play strategy enables students to explore their values and appreciate the consequences of their values based actions, to identify options and solutions, and to manage conflicts. Creating a teaching situation which can lead to the change of self-concepts requires a distinct organizational pattern.

One helpful structure for role playing follows:

1. Preparation
 - 1.1 Define the problem
 - 1.2 Create a readiness for the role(s)
 - 1.3 Establish the situation
 - 1.4 Cast the characters
 - 1.5 Brief and warm up
 - 1.6 Consider the training
2. Playing
 - 1.7 Acting
 - 1.8 Stopping
 - 1.9 Involving the audience
 - 1.10 Analyzing the discussion
 - 1.11 Evaluating

See more at:

<https://www.academicssupportplan.com/LearningStrategies.aspx?panel=roleplay&AspxAutoDetectCookieSupport=1>

- e. **Community problem solving:** provides students with an opportunity to practice the skills that are needed to participate in finding solutions to the local issues that concern them. This helps to develop the important citizenship objectives of learning for a sustainable future and integrates skills – for both students and teachers – of using experiential and enquiry-based strategies. It also integrates skills in the planning of values clarification and values analysis with the possible solutions so students can take action to help achieve a sustainable future.

The following criteria may help you – and your students – choose a possible project and location:

- The locations are readily accessible to students.
- There is no serious risk to the safety of students at these places.
- The projects are within the range of ability of students.
- There is a genuine need in the community for this problem to be solved.
- Students believe the problem is significant to them.

Your Students' Path to Critical Thinking is:

- Think deeply to make relevant connections
- Ask quality and clarification questions
- Use evidence and reasoning to support thinking
- Analyze, reason, and evaluate
- Interpret information beyond surface learning
- Synthesize diverse ideas
- Solve relevant and complex problems
- Make reasoned decisions
- Generate and evaluate options prior to making decisions
- Focus on details to derive meaning
- Apply higher levels of thought to real-world situations
- Think critically on a daily basis
- Use criteria to judge the value of ideas and solutions

- f. **Project Based Learning:** is a teaching method in which a student gains knowledge and skills by working for an extended period of time to investigate and respond to a complex question, problem or challenge.

Essential Elements of PBL include:

- **Significant content** - At its core, the project is focused on teaching students important knowledge and skills, derived from standards and key concepts at the heart of academic subjects.
- **21st century competencies** - Students build competencies valuable for today's world, such as problem solving, critical thinking, collaboration, communication and creativity/innovation, which are explicitly taught and assessed.
- **In-depth Inquiry** - Students are engaged in an extended, rigorous process of asking questions, using resources, and developing answers.
- **Driving question** - Project work is focused by an open-ended question that students understand and find intriguing, which captures their task or frames their exploration.
- **Need to know** - Students see the need to gain knowledge, understand concepts, and apply skills in order to answer the Driving Question and create project products, beginning with an Entry Event that generates interest and curiosity.
- **Voice and choice** - Students are allowed to make some choices about the products to be created, how they work, and how they use their time, guided by the teacher and depending on age level and PBL experience.
- **Critique and revision** - The project includes processes for students to give and receive feedback on the quality of their work, leading them to make revisions or conduct further inquiry.
- **Public audience** - Students present their work to other people, beyond their classmates and teacher.

See more at: http://bic.org/about/what_pbl

- g. **Debate strategy:** Debate can be used in any classroom. It can be as detailed and formal as the Lincoln-Douglass structure used by debate teams, or as simple and informal as pairing students to research and discuss the pros and cons of an issue. As students identify, research, and argue about complex ideas, they hone their skills in critical thinking, organization, persuasion, public speaking, research and teamwork. If the issue they debate is something that is important to their families, their communities or themselves. Debate can also be a powerful way for students to effect change.
- h. **Class discussion:** One of the most challenging teaching methods, leading discussions can also be one of the most rewarding. Using discussions as a primary teaching method allows you to stimulate critical thinking. As you establish a rapport with your students, you can demonstrate that you appreciate their contributions at the same time that you challenge them to think more deeply and to articulate their ideas more clearly. Frequent questions, whether asked by you or by the students, provide a means of measuring learning and exploring in-depth the key concepts of the course.
- i. **Think- Pair- Share:** (TPS) is a collaborative learning strategy in which students work together to solve a problem or answer a question about an assigned reading. This technique requires students to (1) think individually about a topic or answer to a question

and (2) share ideas with classmates. Discussing an answer with a partner serves to maximize participation, focus attention and engage students in comprehending the reading material.

- j. **Jigsaw strategy:** Defined broadly, Jigsaw is a grouping strategy in which the members of the class are organized into “jigsaw” groups. The students are then reorganized into “expert” groups containing one member from each jigsaw group. The members of the expert group work together to learn the material or solve the problem, then return to their “jigsaw” groups to share their learning. In this way, the work of the expert groups is quickly disseminated throughout the class, with each person taking responsibility for sharing a piece of the puzzle.

See more at: <http://www.learner.org/workshops/tml/workshop7/teaching.html>
http://www.educationworld.com/a_curr/strategy/strategy012.shtml

Teachers of the twenty first century know that they must engage their students in learning and provide effective instruction using a variety of instructional methods as well as technology. To do this, teachers keep abreast of what is happening in the field. As lifelong learners, they are active participants in their own learning. They seek out professional development that helps them to improve both student learning and their own performance. The new role of the teacher in the 21st Century classroom requires changes in teachers’ knowledge and classroom behaviors.

The teacher must know how to:

- **Act as a classroom facilitator:** They use appropriate resources and opportunities to create a learning environment that allows each child to construct his or her own knowledge. The teacher is in tune with his/her students and knows how to pace lessons and provide meaningful work that actively engages students in their learning.
- **Establish a safe, supportive, and positive learning environment for all students:** This requires planning on the part of the teacher to avoid safety risks, to create room arrangements that support learning, and to provide accessibility to students with special needs. The teacher is skilled in managing multiple learning experiences to create a positive and productive learning environment for all the students in the classroom. Classroom procedures and policies are an important part of creating a positive learning environment. The teacher evaluates and implements effective classroom management techniques in a consistent manner. She uses routines and procedures that maximize instructional time. Students know what is expected of them, and the teacher knows how to effectively handle disruptions so there is no adverse impact on students’ instructional time.
- **Plan for the long-term and short-term.**
- **Foster cooperation among students within the classroom:** The teacher models and promotes democratic values and processes that are essential in the real world.
- **Encourage students’ curiosity and intrinsic motivation to learn:** The teacher helps students become independent, creative, and critical thinkers by providing experiences

that develop his/her students' independent, critical and creative thinking and problem solving skills. The teacher provides enough time for students to complete tasks, and is clear about his/her expectations. Students are actively involved in their own learning within a climate that respects their unique developmental needs and fosters positive expectations and mutual respect.

- **Make students feel valued:** The teacher emphasizes cooperative group effort rather than individual competitive effort through collaborative projects and a team spirit.
- **Communicate effectively with students, parents, colleagues, and other stakeholders:** The teacher uses written, oral and technological communication to establish a positive learning experience and to involve other stakeholders in student learning.
- **Use language to foster self-expression, identity development, and learning in her students.**
- **Listen thoughtfully and responsively.**
- **Foster cultural awareness and cultural sensitivity in his/her students:** The teacher encourages students to learn about other cultures and instills in his/her students a respect for others and their differences.

See more at: http://woulibrary.wou.edu.my/weko/eed502/Characteristics_of_a_21st_Century_Classroom.pdf

3. Topics

3.1. Pollution

Background resources for teachers:

- <http://www.conserve-energy-future.com/PollutionTypes.php>
- [Air Pollution](#)
- [Acid rain](#)
- <http://eschooltoday.com/pollution/water-pollution/what-is-water-pollution.html>

Activity 1	What is Acid Rain?																				
Cycle	Three																				
Number of sessions	One																				
Objectives	The students will experience the origin of acid rain																				
Materials	<ul style="list-style-type: none"> • Red cabbage juice • Plastic pipe • Glass bottle • Water 																				
Procedure	<ol style="list-style-type: none"> 1. Fill half the bottle with water and add few drops of cabbage juice. 2. Insert the plastic pipe in the bottle and blow till you observe change in the color of the water in the bottle. 3. Use the color index below to tell if the water converts acidic or basic. Red Cabbage Indicator Colour Chart <table border="1" data-bbox="662 1079 1284 1241"> <thead> <tr> <th rowspan="2">pH</th> <th colspan="3">pH less than 7 = Acid</th> <th colspan="3">pH more than 7 = Base</th> </tr> <tr> <th>2</th> <th>4</th> <th>6</th> <th>8</th> <th>10</th> <th>12</th> </tr> </thead> <tbody> <tr> <td>Colour</td> <td style="background-color: red;">Red</td> <td style="background-color: purple;">Purple</td> <td style="background-color: violet;">Violet</td> <td style="background-color: blue;">Blue</td> <td style="background-color: green;">Blu-Grn</td> <td style="background-color: yellow;">Grn-Yel</td> </tr> </tbody> </table> 4. Ask the students to answer the following questions: <ul style="list-style-type: none"> ➤ What main gas are you blowing into the bottle? ➤ How does this gas affect the water in the bottle? ➤ Is this gas found in our air? ➤ How does this gas affect the rain? 	pH	pH less than 7 = Acid			pH more than 7 = Base			2	4	6	8	10	12	Colour	Red	Purple	Violet	Blue	Blu-Grn	Grn-Yel
pH	pH less than 7 = Acid			pH more than 7 = Base																	
	2	4	6	8	10	12															
Colour	Red	Purple	Violet	Blue	Blu-Grn	Grn-Yel															

Activity 2	Effect of acid rain
Cycle	Three
Number of sessions	One
Objectives	The students will investigate the effect of acid rain on nature.
Materials	<ul style="list-style-type: none"> • Chalk • Egg shell • Vinegar • Water • Two glass cups
Procedure	<ol style="list-style-type: none"> 1. Put in one of the glass cup water and in the other vinegar. 2. Put a piece of chalk and egg shell in each of the glass cups. 3. Wait for the other day and observe the chalk and the egg shell in each cup and compare the results. 4. Knowing that most of the stones used for buildings are made up of constituents (calcite) affected by acid like chalk, discuss with your students the effect of acid rain on buildings. 5. Ask the students research the effect of acid rain on soil, living things, and water. Let them present their findings on a poster to be hung in the hall so that other classes for a gallery walk.

Activity 3	How much do you contribute in pollution
Cycle	Three
Number of sessions	One
Objectives	Students will evaluate their actions' contribution in pollution.
Materials	<ul style="list-style-type: none"> ● Water ● Clear cup, ● 4 colors of food coloring ● Bleach
Procedure	<ol style="list-style-type: none"> 1. Begin with a clear plastic cup or beaker of water. Tell them that the water represents the quality of the air. 2. Using a whiteboard, chalkboard or overhead projector, ask students to brainstorm a list of activities they have done in the past 24 hours. Then process the list with the students, noting ones that have negatively impacted the air quality by adding pollutants to the air (a good way is to circle or put dots next to these activities-if possible you could color code by type of pollutant). Since this is an introductory activity, explain to the students that they will be learning about each of these pollutants that are identified over the next week. <ul style="list-style-type: none"> ➤ Activities that require gasoline (car or bus to school or work for example) would release Carbon Monoxide, Nitric Oxides, Sulfur Dioxide, Particulate Matter, and VOC's (volatile organic compounds). For each of these activities listed, add one of blue food coloring. ➤ Activities that require electricity probably would contribute to the air quality in that most power plants rely on burning fossil fuels (the exception would be if your area is served by a nuclear power plant). For each of these activities listed, and one drop of yellow food coloring. ➤ Many activities release Volatile Organic Chemicals (VOC's) into the air. While these are not one of the 7 criteria pollutants that are the focus of this lesson, they do negatively impact the air quality. Chemicals used in shampoos, hair sprays, fingernail polish, deodorants, dry cleaning, paints and many others release VOC's. For each of these activities listed, add a drop of red food coloring. ➤ Any burning activity (like wood stoves, campfires, leaves) release both particulate matter and carbon monoxide. If it is age appropriate, smoking releases a host of harmful air pollutants, the worst of which may be high levels of small particulate matter (PM2.5). For each of these activities, add a drop of green food coloring. ➤ Ask the students: After looking at the water, would they be comfortable breathing in air that was similarly polluted? What things could they change to personally reduce the amount of pollution put into the air? 3. In a large container, let all students put their water in it and examine its color. Discuss with your students how we all increase pollution in our activities.

Activity 4	From where do we drink?
Cycle	Three
Number of sessions	Two-Three
Objectives	Students investigate the source of their drinking water and examine its suitability for drinking.
Resources	<ul style="list-style-type: none"> • A person responsible about the drinking water in the municipality of the village or region. • http://www.freedrinkingwater.com/water-education/quality-water-standard.htm • Water pollution resource
Procedure	<ol style="list-style-type: none"> 1. Let the student use the site above to research the criteria of safe drinking water to ask water expert about in the following day 2. Invite the water expert to class and let the students interview him and write their notes. 3. Let them evaluate if the water they drink is contaminated or it needs further treatment. 4. Divide the class into 6 groups and give each group a water pollution cause from the water pollution resource. Let each group prepare a presentation to show the seriousness of their water pollution cause and suggest a way to reduce it or to treat it. 5. Let each group present their findings.

3.2. Climate Change

Background resources for teachers: [Climate change background](#)

Activity 1	Effect of Green House Gases
Cycle	Three
Number of sessions	Two-Three
Objective	Students will investigate the effect of greenhouse gases on temperature
Materials	<ul style="list-style-type: none">• Two small transparent closed containers• fresh peas• two thermometers that could be penetrated into the lids of the containers
Procedure	<ol style="list-style-type: none">1. Give your students the following experimental design and let them work in groups.2. Fill one of the containers with fresh peas that are able to transpire and produce carbon dioxide, one of the greenhouse gases, and cover the container tightly keeping the thermometer tip inside.3. Do the same process in the other empty container.4. Observe the temperature of the containers over days.5. Compare your results6. Let them answer the following questions:<ul style="list-style-type: none">➤ How does CO₂ affect the temperature of the container?➤ How does this demonstrate earth?➤ How do you think this effect will impact our environment?➤ Have you experienced any climate change in your community?➤ How do you feel about it?➤ Research the causes of climate change to be presented in class in the second period. Present your research on a power point presentation or a poster.

3.3. Biodiversity

Background resources for teachers: [Biodiversity information](#)

Activity 1	The importance of biodiversity
Cycle	Three
Number of sessions	One
Objectives	Students will understand the importance of biodiversity and research the causes of its destruction
Materials	<ul style="list-style-type: none">• Video about Biodiversity• https://www.youtube.com/watch?v=HA3xNMJnFuo
Procedure	<ol style="list-style-type: none">1. Prepare the students by telling them they are going to answer the following questions after they watch the video. Advise them to write notes as they watch.<ul style="list-style-type: none">➤ What is biodiversity?➤ Why it is important?➤ What are the factors destroying biodiversity?➤ What can you do about it?2. Let the students watch the video and write notes.3. Divide them into groups to discuss the questions and to come out with their answers to be presented in front of all

3.4. Natural Resources and Energy

Background resources for teachers:

- <http://www.tutorvista.com/content/biology/biology-i/natural-resources/natural-resourcesindex.php>
- [Natural resources](#)
- [All about energy](#)

Activity 1	Travels of a T-Shirt
Cycle	Three and four
Number of sessions	One
Objectives	<ol style="list-style-type: none"> 1. Recognize the natural resources used in an energy web. 2. Realize the impact of consumerism on our natural resources both past and present. 3. Identify solutions to over consumption.
Materials	<ul style="list-style-type: none"> • T-shirt • Sharpie markers • Rough draft scrap paper • Pencil • Blackboard/chalk (indoors) or dry erase board/markers (outdoors)
Procedure	<ol style="list-style-type: none"> 1. Ask students to bring in an old t-shirt from home for this lesson. 2. Use a blackboard or dry erase board to introduce an energy web that includes: raw material, transportation, processing, manufacturing, transportation, marketing and final sales. 3. Have students brainstorm ideas in small groups (2-3) for a t-shirt energy web. 4. Ask students to generate an illustration of a t-shirt energy web using rough draft paper. 5. Final step, have students transfer the web they've created to a t-shirt garment. 6. As the t-shirts are worn, students can evaluate the variety of webs from the class and determine similarities and differences. 7. The bonus of this lesson involves students acting as walking billboards for the general public will have the opportunity to evaluate the cost of consuming whenever the t-shirt is worn.

Activity 2	Learn to Recycle
Cycle	Three
Number of sessions	One-Two
Objectives	Students will be able to set a plan to encourage recycling in their school.
Materials	<ul style="list-style-type: none"> • Recycling video • recycling Manual
Procedure	<ol style="list-style-type: none"> 1. Students watch the recycling video to extract by themselves the definition of recycling: convert (waste) into reusable material. 2. In groups, students will use the manual (2) to find the materials that are recyclable in school and the contact information of the companies responsible. 3. Every group will be responsible about one recyclable material to manage its sorting in school by spreading the word, distributing brochures and facilitating specialized containers. 4. Students will take pictures and sum up their work by video or by poster to be presented in class in front of other groups.

Activity 3	Saving Energy, Save the Environment, Start an Energy Patrol!
Cycle	Three
Number of sessions	Three-Four
Objectives	Give students an opportunity to practice leadership skills by getting involved and taking responsibility for their school. The patrol also reduces the school's energy costs so that more money can be used for school programs.
Materials	<ul style="list-style-type: none"> • Special jackets • Energy Patrol symbol <p>The Energy Patrol makes sure that lights and other things that use power, like computers, are turned off in your school or youth center when no one is using them. Lights are a good target for the Energy Patrol because in most schools or youth centers, up to half of all the energy used in the building is for lighting.</p>
Procedure	<ol style="list-style-type: none"> 1. Ask a teacher or staff person at your school to help you start the Energy Patrol. The advisor can ask the school, the local power company, or a local business to pay for jackets, t-shirts, or hats that the Energy Patrol will wear. Special jackets with the school name and an Energy Patrol symbol will make the patrol stand out and give members the respect they deserve. Patrol members can make their own symbol. The symbols can also be placed on the light switch stickers. 2. Once you find an advisor, decide where and when you can meet. You will need to make some rules and give each member a job to do. You will also need to make a list of rooms where students are allowed to check: <ul style="list-style-type: none"> ➤ Check sheets for each room listing what to check (lights, computers, or anything else you plug in, like TVs, and also check thermostats), ➤ A schedule for room checks, agreements for members to sign to serve on the patrol, ➤ Light switch stickers that say, "Please turn off the lights!" ➤ A safety check list for patrol members. 3. Do a "walk-through" with your advisor to practice. 4. Practice safety when walking around the school. 5. Have a good place to store your checklists and other supplies. 6. Ask the principal to make an announcement about the patrol. 7. Write down what you do so you know the best ways to save energy and how much the school saved. 8. Make awards for the rooms that do the most to save energy. <p>http://www.energyquest.ca.gov/library/documents/Energy_Patrol.pdf or Energy patrol</p>

3.5. Population Growth

Background resources for teachers: [Population density information](#)

Activity 1	World of 7 billion
Cycle	Three
Number of sessions	Three-Four
Objectives	Students will be able to articulate their thoughts on statements that deal with ethical issues about population and the environment.
Materials	<ul style="list-style-type: none"> • Statements document • 5 signs reading: <ol style="list-style-type: none"> 1. “Strongly Agree” 2. “Agree” 3. “?” 4. “Disagree” 5. “Strongly Disagree” • Masking tape
Procedure	<p>Sometimes it is easier to think through an issue if you are asked to “take a stand” on it. For this activity, students are asked to take a position and articulate their views on several contemporary issues that are related to a population of over 7 billion and their resource consumption trends.</p> <ol style="list-style-type: none"> 1. Tape the signs on the wall around the classroom. 2. Explain to the students that you will be reading several statements to them, and that they should stand in front of the sign that most closely represents their reaction to the statement you’ve read. They will then be asked to explain their particular stand on each issue. They are free to move to a different sign if/when their opinions change after hearing their classmates’ views. When facilitating the activity, try to give equal time to representatives of different sides of the issue and solicit remarks from as many students as possible. Do not let your own opinions show, but you may pose questions to help students articulate their thoughts. 3. You may want to use some of the following techniques to keep the debate on track. To show respect for viewpoints different than their own, have students paraphrase the opinions offered by others before they speak. To stay focused on content, not personalities, assign students to a position that they must defend, even if it does not mesh with their personal values. <p>Note: Use your discretion in choosing statements on which students have enough information to form an opinion. If you’d like to ensure that your students are able to make educated opinions, provide them with the statement(s) you’ll be discussing a day or two ahead of the activity in class. Let them use this time to look into the issue at hand so they can make an informed choice and gather useful knowledge to support their opinions.</p>
Modification:	Instead of having students move around the room and discuss their

	<p>thoughts on the issues, you can use this activity as a lesson in persuasive writing. Choose one of the statements and ask the students to write a short (3-5 paragraphs) essay on their stance. They should choose an audience space and try to persuade that audience to believe as they do about the issue.</p>
<p>Follow-up Activities</p>	<ol style="list-style-type: none"> 1. Students can record their stances for the statement and then research the arguments on both sides to decide if they would like to change their stand. Alternatively, the statement can be used as pre- and post-evaluation to gauge how students' content knowledge has grown as a result of a deeper understanding of the issue. 2. Students can write their own statements that relate to their school, community, or state. Encourage them to create statements that have different viewpoints and are debatable. Use several of these statements for the in-class activity. <p>For more activities</p> <ol style="list-style-type: none"> 1. http://www.fayar.net/east/teacher.web/math/Illuminations/lessonplans/6-8/popdens/Pop_Density.PDF 2. http://www.lessonplansinc.com/biology_lesson_plans_ecology_lab.php 3. http://www.pbs.org/wgbh/nova/education/activities/3108_worldbal.html

3.6. Poverty

Background resources for teachers: <http://www.poverties.org/effects-of-poverty.html>

Activity 1	The Causes of Poverty
Cycle	Three
Number of sessions	One
Objectives	Students will uncover the root causes of poverty.
Materials	<ul style="list-style-type: none"> ➤ http://www.globalissues.org/issue/2/causes-of-poverty ➤ Poverty and human right
Procedure	<ol style="list-style-type: none"> 1. Divide the students into groups; then distribute for each group one or two poverty causes from documents to be discussed. 2. Ask participants to consider the following questions for group discussion or silent reflection: <ul style="list-style-type: none"> ● Why do you think that hunger and homelessness continue to exist today? ● Do you think that all people have their rights based on the document you read? ● How does your faith call you to respond to people living in poverty? 3. Provide each group with a large piece of butcher paper, magazines, scissors, glue, and a variety of colored markers. Ask the members of each group to complete the following tasks: <ul style="list-style-type: none"> ● Write their assigned poverty cause in large print on their piece of butcher paper. ● Make their piece of butcher paper look like a “brick” or a “stone.” ● Use pictures, symbols and drawings to illustrate what their barrier means. ● Use pictures, symbols and drawings to illustrate how their cause affects people living in poverty. <p>After participants have had time to create their “brick”, asks a representative from each group to present their cause to class and then post their brick to create a wall. Each group should have a chance to add its “brick” to the wall.</p> <p>After all the groups have presented and posted their “brick”, they have created a wall of poverty. Combined, this structure represents the barriers that prevent a significant number of Lebanese people from breaking through to a life more consistent with human dignity.</p>

Activity 2	What is it like to live in poverty?
Cycle	Three
Number of sessions	One
Objective	Students will describe what it means to be living in poverty in Lebanon today.
Materials	Hand out of poverty quotes.
Procedure	<ol style="list-style-type: none"> 1. Ask your students to take turns reading these quotes from people living in poverty. To emphasize and add drama, turn off the lights and shine a dim flashlight on the group members' faces as they read, avoiding their eyes. 2. Turn on the light and make a chart, entitled poverty, on the board divided into three parts: feels like, sounds like, looks like. Ask the students to fill up the chart based on what they read and what they imagined. 3. Post the chart on the wall of the class or playground to share.

Activity 3	Sharing the message
Cycle	Three
Number of sessions	Three - Four
Objective:	Have your students organize their own educational campaign focusing on children in poverty in Lebanon today.
Materials:	<ul style="list-style-type: none"> • Video of poverty • Magazines and articles containing poverty pictures <ul style="list-style-type: none"> ▪ https://www.youtube.com/watch?v=-ITboOpE_wM or Wazzani movie ▪ http://www.executive-magazine.com/opinion/leaders/tackling-poverty-lebanon ▪ http://www.executive-magazine.com/tag/lebanese-poverty • Cardboards
Procedure	<ol style="list-style-type: none"> 1. Start by showing the video about poverty in Lebanon 2. Students research the issue of child poverty in Lebanon using magazine and newspaper articles links above. 3. Then have each group create their own posters, flyers or print advertisements to run in class newsletter, the local school newspaper or a similar outlet. Or have one group create their own videotaped commercials to social media and school website. 4. Organize "poverty fair" at a back-to-school night or group assembly. Invite family and friends and hold poster sessions of your class's projects, providing an opportunity for your students to talk about what they have learned, showcase their projects, and bring greater awareness about the problems of poverty to their own community.

3.7. Gender Discrimination

Background resources for teachers:

1. [Gender Equality](#)
2. <http://www.dailystar.com.lb/News/Lebanon-News/2010/Mar-09/56697-lebanese-women-still-face-discrimination-study.ashx#axzz35vo3ioYZ>
3. <http://priyankamogul.com/2012/03/07/equality-for-women-lebanon/>

Activity 1	Gender Roles and Relationships. <i>A Lesson Plan from Life Planning Education: A Youth Development Program.</i>
Cycle	Three-Four
Number of sessions	Two-Three
Objectives	To examine how gender roles affect relationships
Materials	Leader's Resource, end of activity
Procedures	<ol style="list-style-type: none"> 1. Explain to teens that stereotypes about gender roles can affect our relationships. Explain that this activity will explore situations where gender roles and stereotypes might affect teens' goals, decisions, and relationships. 2. Divide participants into small groups and go over instructions for the activity. 3. Each small group will receive a case study involving issues of gender roles. Work to resolve your case study, and then prepare to present your solution. You will have 10 minutes. When you present your solution, others can challenge it while you defend it. Be sure to have convincing reasons to back up your solution. 4. When time is up, ask for a volunteer to present the case study and its solution. Then invite any challenges. Arguments are okay as long as the group sticks to the ground rules. Allow 'debate' to go on for two or three minutes, assisting either side as appropriate, before moving on to another small group. Repeat the process until the entire group discusses and debates all case studies. 5. Conclude the activity using the Discussion Points below.
Discussion Points	<ol style="list-style-type: none"> 1. Is it easy or hard to look at male and female roles in a new and nontraditional way? Why or why not? 2. How do men or women accept changes in traditional gender roles? Why? 3. What are some of the ways changing gender roles have affected relationships between men and women in a) social settings, b) families, and c) the workplace? 4. Would your parents reach the same or different solutions? 5. Which case study was the most difficult? Why? 6. If you could make one change in men's gender roles, what would it be? In women's roles, what would it be?

Gender Role: Case Study

A Lesson Plan from Life Planning Education: A Youth Development Program

Leader's Resource for Gender Roles and Relationships Lesson Plan

1. Nader is about to ask Samar out for the first time when she walks over to him and says, "Nader, there's a new movie in town and I really want to see it. I was hoping you would go with me. Are you busy Saturday afternoon?" Nader has no plans, and he was hoping to take Samar to the movie, but he wants to do the asking. He thinks he'll say he's busy. What can Nader say or do?
2. Layla has been offered a special grant to apprentice with a master nurse after graduation. She's excited, and she rushes to tell Bahaa. They've been planning to get married in the fall, and this way, she'll be able to start earning good money. Bahaa is very quiet after Layla tells him. Finally, he says, "I don't think I can marry a plumber, Layla. You're going to have to make a choice—me or being a nurse." What might Layla do?
3. Ahmad wants to buy a doll for his nephew's birthday, but his friend, Lilian, says, "No way!" Ahmad explains that dolls help teach little boys to take care of someone and to be loving persons but Lilian argues that they just teach boys to be sissies. Ahmad knows he is right, but he's concerned about what Lilian might say to their friends. What might Ahmad do?
4. Salma and Nidal have been engaged for months, and things have been good between them... However, lately Nidal has been putting a lot of pressure on Salma for more than she is ready for. When she says, "No," he says that it's her place as a woman to please him. What can Salma say to him?
5. Jana and Rabih are arguing about their sister, Khalida, and her husband, Ahmad. Jana has noticed lots of bruises on Khalida's arms and shoulders recently, and this weekend she had a black eye. Rabih says Khalida has been too "uppity" lately and their brother-in-law is trying to show her who's boss. Jana looks at Rabih and shakes her head. She doesn't think violence is ever an answer. What might Jana say?
6. Susan and Jamal have been engaged for almost a year. Jamal always pays for everything and makes most of the decisions about where to go and what to do. In Susan's health class, they talked about girls paying for dates and having some say about a couple's plans. Both Susan and Jamal have part-time jobs and earn very little money, so pooling their funds seems to make sense to Susan; but Jamal is furious at the idea. He says she doesn't think he is man enough to pay for her. What might Susan say to Jamal?

Adapted from Life Planning Education, a comprehensive sex education curriculum. Washington, DC: Advocates for Youth.

See more at: <http://www.advocatesforyouth.org/for-professionals/lesson-plans-professionals/219-lessons>

3.8. Youth and Development

Background resources for teachers: <http://www.uwex.edu/ces/4h/pubs/showdoc.cfm?documentid=11399>

Activity 1	Listening for good Dialogue
Cycle	Three and Four
Number of sessions	Three-Four
Objectives	By the end of this lesson your students should know what dialogue is and is not, understand the importance of listening to one another, and have experienced reflecting upon its importance.
Starter Activity	<p>“What happens when we don’t listen to one another”</p> <p>Stimulus to individual thought and response</p> <p>Have the question up on the board – but explain to students that you are going to approach it in a new way – introduce think pair share as the method by which they are going to share their answers.</p> <p>Feedback – Ask students to share their pair’s best two ideas either by oral feedback, or by making new pairs.</p> <p>Meta-learning feedback (Can be helpful if students are dubious about the activity). Get students to total up how many different ideas they came up with – this will be many more than they would have done had you just asked for ideas – and from many more people too.</p>
Main Activities	<p>Dialogue Case Study – The Imam and the Pastor.</p> <p>Students consider an example of where dialogue has been used to help build peace. Please feel free to substitute a more culturally appropriate case study if relevant.</p> <p>Ask your students to read the “when people forget to listen” worksheet. Alternatively, read the worksheet out loud to them.</p> <p>Make the link between the student’s skills in this lesson (listening to others, engaging in dialogue, group work and empathy) whilst understanding the conflict and the peace building efforts.</p> <p>Show your class the 10 minute clip from the film “the Imam and the Pastor” (https://www.youtube.com/watch?v=oapAA0XUaH4). Please note that there are some distressing images in this film so ensure you are comfortable with your students watching it before showing it.</p> <p>The film is an inspiring story that describes the transformation that took place in the lives of Imam Muhammad Ashafa and Pastor Jame Wuye in Nigeria, moving them from armed militia members to co-workers on reconciliation efforts.</p> <p>As students watch the film, ask them to write down the things that stick out to them most about what they see and hear. After the film is finished ask them to share these thoughts with the person sitting next to them and then use these thoughts to start a class discussion.</p> <p>Points for a class discussion:</p> <ul style="list-style-type: none"> • Causes of the conflict • Barriers to peace • The role of dialogue in building peace – use the two quotes from

	<p>Imam Ashafa and Pastor James to stimulate discussion on this from page 2 of the worksheet.</p> <p>Finally, ask the students to reflect on where they think that there are peace related issues in their community. Could dialogue be used to help build peace in this situation too?</p>
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See more at: <http://tonyblairfaithfoundation.org/religion-geopolitics/commentaries/backgrounder/five-questions-onreligion-nigeria>

3.9. Green Economy

Background resources for teachers: [Green economy information](#)

Activity 1	The Green Wave & My Community
Cycle	Three and four
Number of sessions	Four-Five
Background	A growing concern about global warming and human impact on the environment has led to a dramatic increase in services, products, and technologies that are considered “environmentally sustainable” or “green.” Together, these new services, products, and technologies are creating a huge market, and consequently, a new sector of our economy. This blossoming “green economy” (which includes things like hybrid cars, wind turbines, green buildings, and solar panels) is impacting communities across the world.
Activity Overview	In this activity, students discuss the meaning of “green,” learn about the green economy, and then break up into sector groups to investigate to what degree the green economy is (or isn’t) impacting their community.
Objectives:	<ul style="list-style-type: none"> • Students explore the definition of “green” • Students identify sectors of the “green economy” • Students determine where the green economy is/isn’t present in their own community
Extensions	<ol style="list-style-type: none"> 1. Students are split up into groups and told that they have been hired to start a new green business in their community. They must determine what product to offer, how to make sure that their business is green, etc. Their goal is to win “start-up” funds from the local city government. The activity culminates with group presentations to the city’s “review board,” which may be the teacher or a group of teachers/colleagues. (Note: The review board should determine assessment criteria.) 2. Students design a poll to assess public knowledge about global warming and/or the green economy. They may choose to interview business owners, community leaders, citizens (family, fellow students, and friends), public officials, non-profit organizations, etc. Results from the poll are tabulated and students write final reports (and/or make presentations) interpreting their class findings. 3. Students conduct a media search to find articles in the national media that relate to the growing “green economy.” They may also look at recently published newspapers or newsletters in their neighborhood. Can they find traces of the green wave in their local media? <p>Day One</p> <ol style="list-style-type: none"> 1. Open a class conversation about sustainability and the word “green.” ≠ Who has heard/seen the word “green” lately? ≠where did you hear/see it? (Poster, billboard, advertisement, magazine, newspaper, business, conversation, etc.) ≠ what does “green”

mean to you? Lead a large group to brainstorm on this question and record student answers on butcher paper or chalkboard. Check for understanding and offer a final definition of “green” that synthesizes appropriate student answers. ≠ what are some examples of: green products, green technology, and green businesses? (Record answers.)

2. Have students read the GREEN ECONOMY OVERVIEW HANDOUT (presented in the link below)
3. Back in the large group; discuss student reactions to the handout. Review student answers to the last question from the original class brainstorm. Are there obvious items missing from the class brainstorm? Do the class ideas fit into LOHAS market sectors? Get student opinions on whether or not they think the green economy has a presence in their community.
4. Break students up into small groups (4-7 students per group). Introduce the class goal: to assess the presence of the Green Economy in their neighborhood. Present the large COMMUNITY ASSESSMENT GRID (presented in the links below) and post visibly. Distribute group instructions and COMMUNITY ASSESSMENT GRID handout. Have students read their group instructions and determine their research schedule. (How will they use their time the following class period? What should they do for homework tonight?)

Day Two

Students conduct research (online, in community, etc.) according to the plan they created during Step 4 of Day One.

Day Three

1. Each group reports back answers to their research questions and then fills in their section of the large COMMUNITY ASSESSMENT GRID.
2. Discuss group findings as visualized by the COMMUNITY ASSESSMENT GRID. What did we find out about our community? Is our town/city participating in the green economy? Why/why not? What does that mean?
3. Discuss next steps. Are there actions we can take to bring green opportunities to our neighborhoods? What can we do to support the health of our community, family, and environment?

[All resources and students handouts are present in the following link](http://ellabakercenter.org/sites/default/files/downloads/RTFTeacherGuide.pdf)
<http://ellabakercenter.org/sites/default/files/downloads/RTFTeacherGuide.pdf>
http://www.youtube.com/watch?feature=player_embedded&v=2SmF3B3734E

4. Extra – curricular activities

4.1. How to start an environmental club

The Basics of Setting-Up an Eco-Club:

1. Recruit 4-6 core people to help you. Find a few friends and a ‘Nature Champion’ at your school (typically a teacher or parent) to help you with the club. This core group can form your leadership team.
2. Appointment of a temporary chairman or president. At first you will need to assign a temporary leader to preside over the drive to form the club. This may or may not be the person who serves as permanent chairman or president.
3. Election of temporary officers. The members should discuss which officer appointments are necessary for your club. Decide whether you want a president or chairman; whether you want a vice president; whether you need a treasurer; and whether you need someone to keep the minutes of each meeting.
4. Preparation of by-laws or rules. Decide upon a committee to write the by-laws or rule booklet. See these sample by-laws.
5. Adoption of by-laws or rules. Once the by-laws or rules are written to everyone’s satisfaction, you will vote to adopt them.
6. Election of permanent officers. At this time you can decide if your club has enough officer positions or if you need to add some positions. Some of the positions you should consider are listed below:
 - President: Leads meetings
 - Vice president: Supports the president and helps plan events
 - Secretary: Records and reads minutes
 - Treasurer: Handles funds
 - Historian: Keeps a picture book and notes
 - Publicity Officer: Makes and distributes flyers, posters
 - Webmaster: Maintains web site

Club Projects:

It is fun to raise awareness on the environment, or help people learn more about a specific topic, by doing a project that celebrates an environmental person or event. Examples of such projects:

- Environmental Art Shows/Recycling Sculptures
- Field trips to Nature Museums or Nature Centers
- Dinners/events that honor famous environmental stewards
- Educational activities/presentations (E.g., Earth Day)

Projects in Research

These projects include scientific/practical research with a “real-life” approach and application. Results can be shared with specific audiences or the general public to promote action (e.g., restoration of an area, implementation of policies, etc.) on an issue. Examples:

- School surveys about recycling practices
- Environmental Audit of a local business
- Water quality monitoring project
- Inventory of trees/plants in a neighborhood

Restoration or Beautification Projects

These projects allow people to get outside, use physical activity, and make visible improvements in the environment in a short-term period.

Examples include:

- Building a greenhouse
- Developing/maintaining trails
- Designing a school garden or habitat
- Planting Trees on Arbor Day
- Cleaning up Litter

Civic Action Projects

Like other types of projects, these projects require you to take action to protect the environment. However, unique to this type of project is that it always focuses on an issue—a problem that includes two or more viewpoints as to what the problem is and how it should be solved.

There are different breakdowns of action projects:

- Persuasion: This is used when you are trying to convince someone to take a certain course of action
- Economic Action: You can also have an impact by purchasing or not purchasing (i.e. boycotting) certain products based on their environmental “friendliness”
- Political Action: This involves encouraging an elected official or public leader to take action on your issue.

See more at: <http://www.kidsecoclub.org/Documents/kec-manual-bw.pdf>
<http://online.nwf.org/site/DocServer/How to Start an Environmental Group in Your School or Co.pdf>

4.2. Field trips

Extracurricular Activity	Taking a Field Trip
Grades	6-12
Subject:	Adaptable to all subjects
Estimated Time of Completion	A minimum of three 50-minute class sessions
Summary	Extending your lesson beyond the classroom through field trips can offer opportunities to students that they may never otherwise have. Students can utilize techniques of the investigator, historian, archaeologist, architect, geographer or environmentalist. It is an opportunity to teach students about environmental responsibility or to enrich the subject area you are teaching in. Creating a field trip that will benefit your students' lives, enhance their skill and knowledge, and ensuring that they are safe will require preparation and organization. This lesson will guide you through the organization process to provide structure, safety and success for your class field trip. It will be necessary for a teacher to somewhat adapt the offered guidance to a specific subject area, field trip situation, and the individuality of a specific class.
Objectives	<ul style="list-style-type: none"> • Students will draw conclusions, make predictions and practice making environmentally responsible decisions. • Students will acquire knowledge, clarify thinking, synthesize information and enhance historical thinking.
Materials	<p>Optional: Computer with Internet access with a presentation device or available computers for groups of students and Internet access to the History Detectives site.</p> <p>Permission forms, chaperone guides, any forms for activities, evaluations, etc.</p>
Procedure	<p><i>A. First Session - Planning the trip and preparing your students</i></p> <p>A1. <u>A field trip should be an extension to subject matter taught in the classroom.</u> Would your class benefit from a particular location, a special exhibit, or a unique demonstration? A planetarium might be more suitable to a science class while a museum might be appropriate for your history class. A walking tour at times might be preferable to a long drive to another location. Consider the purpose to arrive at a field trip that enhances classroom work. Consider the purpose of the trip and how best to meet the classroom goals. Consider available dates, transportation, and times before finalizing a field trip. As with anything, you will have to be conscious of cost and funding. The field trip may require a fund-raiser. Use the form to organize your field trip thoughts.</p> <p>A2. <u>Research the location of the planned field trip.</u> If possible, check out websites, call for information and ask about assistance in planning the field trip. Correlate dates to the purpose of the field trip. Continue to organize your trip by recording your research on the organizational form.</p>

A3. Work out procedures for lunch. Ordinarily on a field trip, lunch is done in one of the following ways:

- a. Either school cafeteria packs the students' lunches or students bring their own. Considerations for sack lunches: you will need a place to eat, room to transport them, ice chests to cool them, and identification on them. You will need a procedure for handing out lunches, and you will need an alternate plan in case of rain - you might have to eat on bus.
- b. Eating in a restaurant or food court might be easier but consider that extra money for lunch may pose a financial burden on some. Students will have to keep up with their own money; there will be waiting time, (unless you can make a reservation with food preordered).
- c. Food may be provided as part of the field trip.
*In any case, be alert to food allergies, diabetics, or students that take any medicine - have a plan in place for emergency sicknesses. This information should be on permission slips or manifests. The safest of all the lunch choices may be to allow students to bring their own lunch since they will be aware of what they can or cannot eat.

B. The day before the field trip

B1. Cover the background subject matter. If you can excite and engage students, they will get more from the trip. Share as much as possible about the trip to enlighten the students. Consider giving students an itinerary. Consider challenging students with a research log to record findings, a journal to record reactions, questions, or a scavenger hunt project. Field trips can offer students a chance to experience the classroom curriculum themes.

B2. Have students participate in the link off of the History Detectives site in the Lesson Plans - Unit 1, *Before We Travel, We Research*. <http://www.pbs.org/opb/historydetectives/educators/technique-guide/before-we-travel-we-research/>

B3. Review expectations and behaviors for the trip. This will differ for different types of trips. If the trip is one outdoors or involving historical artifacts, review environmentally responsible behavior (form - Environmentally Behavior).

B4. The day before the trip, check the list. Ensure that lunch, transportation, and any reservations have been confirmed.

B5. The day before the trip, provide chaperones with any necessary procedures and rules. (Suggestions are found on the chaperone form).

B6. Have information on all students collected and recorded. (See permission

slips).

B7. Remind students of proper dress. If weather is cooler, the students may need a coat or sweater. If it is warm, students may need sunglasses or sunscreen. Remind students of lunches if they are responsible for their lunch. Remind students to bring any money that they might need.

B8. Have students leave valuables at home. Encourage students to keep up with items that they bring. (Be aware of limited space, theft, and misplaced items)

B9. Teach students about environmental responsibility. Discuss with students why it is important to leave nature the way you found it. Discuss the importance of preservation of documents and artifacts.

C. Field trip day

C1. Be prompt. Allow time for locating the place of the field trip if you have never been there. Allow time for parking. Locate the rest rooms.

C2. Double check if lunches or medicines are to be loaded on the bus.

C3. Have materials needed for field trip. This could be as simple as a student laptop, or journal, or student research log. It could be as complicated as gardening tools and extra clothing for students.

C4. Instruct students of any notes, journal writing, or authoring that they will need to do. For ideas, look at the History Detective site sections: At the Site, A Scavenger Hunt

(<http://www.pbs.org/opb/historydetectives/educators/technique-guide/scavenger-hunt/>).

Also, check out writing a Historical Poem.

<http://www.pbs.org/opb/historydetectives/educators/technique-guide/writing-an-historical-poem/>

C4. Ensure safety. Try to be prepared for what might happen. Have a plan for taking care of sick students. Have a first aid kit for small injuries. Bring important phone numbers for contacting school officials and/or parents. Some schools have nurses that actually attend the field trip with the class.

C5. Consider taking: first aid kit, cell phone, walkie-talkies, important phone numbers, paper and pencil, watches for time, laptops, paper and pencil, glasses, winter clothing, umbrella, magnifying glass, map, compass.

D. Returning to school

D1. Have students write a letter of appreciation when the trip is completed.

	<p>D2. <u>Have students discuss and ask questions</u> about their field trip experience.</p> <p>D3. <u>Have students use their newly acquired knowledge and skills.</u> Suggestions: write a poem, write in student journals, and publish a class newspaper to inform others, create a website complete with pictures, further research on generated topics, oral reports, dramas, art projects, or classroom exhibits.</p> <p>D4. <u>Have students complete an evaluation form.</u> You will have documentation about its success or failure. The students will have to think through the field trip experience.</p>
<p>Assessment of Field Trip Success</p>	<p>1. <u>Ask students and chaperones to evaluate the field trip.</u> What did they like best and least? Was it what they expected? Did they find the information useful? How could the trip have been better?</p> <p>2. <u>Teachers should ask:</u></p> <ol style="list-style-type: none"> a. Were goals and objectives met? b. Did the trip reinforce, remediate, or enrich subject material? c. Was the field trip an extension of the classroom? d. Was it enjoyable for all concerned? e. How could the trip have been better? <p>3. If projects spring from the field trip, they will have their own assessment.</p>
<p>Extensions and Adaptations</p>	<p>Encourage students to create some classroom virtual field trips.</p> <p>Upon return, have students draw maps of their field trip.</p> <p>Have students compose a bibliography of resources to complement this field trip.</p> <p>Have students plan a field trip using a budget, drawing a map, writing the rules, composing a letter of appreciation, and devising a plan for assessing its success.</p>

4.3. Environmental play

Research indicates that children learn best in an environment which allows them to explore, discover, and play. Play is an important part of a developmentally appropriate child care program. It is also closely tied to the development of cognitive, socio-emotional, and physical behaviors. But what exactly does it mean to play and why is play so important for young children?

What Is Play?

Although it is simple to compile a list of play activities, it is much more difficult to define play. Scales, et al., (1991) called play "that absorbing activity in which healthy young children participate with enthusiasm and abandon" (p. 15). Csikszentmihalyi (1981) described play as "a subset of life..., an arrangement in which one can practice behavior without dreading its consequences" (p. 14). Garvey (1977) gave a useful description of play for teachers when she defined play as an activity which is: 1) positively valued by the player; 2) self-motivated; 3) freely chosen; 4) engaging; and 5) which "has certain systematic relations to what is not play" (p. 5). These characteristics are important for teachers to remember because imposing adult values, requirements, or motivations on children's activities may change the very nature of play.

The Teacher's Role

The early childhood teacher is the facilitator of play in the classroom. The teacher facilitates play by providing appropriate indoor and outdoor play environments. Safety is, of course, the primary concern. Age and developmental levels must be carefully considered in the design and selection of materials. Guidelines for selecting safe and appropriate equipment for outdoor play environments are available through the *U.S. Consumer Product Safety Commission's Handbook for Public Playground Safety and the Playground Safety Manual* by Jambor and Palmer (1991). Similar guidelines are also available for indoor settings (Torelli & Durrett, 1996; Caples, 1996; Ard & Pitts, 1990). Once appropriate environments and materials are in place, regular safety checks and maintenance are needed to ensure that the equipment is sound and safe for continued play.

Teachers also facilitate play by working with children to develop rules for safe indoor and outdoor play. Discussion about the appropriate use of materials, the safe number of participants on each piece of equipment, taking turns, sharing, and cleaning up provides the children with information to begin their play activities. These discussions need to be ongoing because some children may need frequent reminders about rules and because new situations may arise (e.g., new equipment).

By providing play materials related to thematic instruction, early childhood teachers can establish links between the children's indoor and outdoor play and their program's curriculum. Thematic props for dramatic play can be placed in the dramatic play center or stored in prop boxes and taken outside to extend the dramatic play to a new setting. An art center in the outdoor play environment may encourage children to explore the possibilities of using leaves, twigs, pebbles, and sand in their three-dimensional art productions. Painting easels and water tables may also be moved outside periodically for children's use during outdoor play periods. Finally, a collection of books stored in a wagon to be taken outside during play time may offer some children a needed alternative to more active play.

As facilitators of children's play, teachers should closely observe children during play periods not only for assessment purposes, as stated earlier, but also to facilitate appropriate social

interactions and motor behaviors. It is important that children be the decision-makers during play, choosing what and where to play, choosing roles for each player, and choosing how play will proceed. Occasionally, however, some children will need adult assistance in joining a play group, modifying behavior, or negotiating a disagreement. Careful observation will help the teacher to decide when to offer assistance and what form that assistance should take.

Play sample	Barely Breathing Play
Objectives	Students demonstrate air pollutants in a play showing their contribution in health problems.
Materials	<p>Copies of student roles, ID necklaces for full class performance, reference materials, various websites, situation cards, poster board, art materials</p> <p>The Play—Barely Breathing—Criteria Air Pollutants</p> <p>The cast of characters and some suggestions for props and costumes:</p> <ol style="list-style-type: none"> 1) Adam Mosefear—reporter—props, microphone and notebook 2) Lenny the Lead—wears a wanted sign 3) Ozone---heels, glamorous clothing 4) Carbon Monoxide—costume—sneakers, hat, trench coat, sunglasses 5) Nitrogen dioxides(aka NOx--- picture of a fummy tailpipe) 6) Sulfur dioxide(SOx for short---yellow t-shirt) 7) PM10 and 8) His little brother PM2.5
Procedure	<ol style="list-style-type: none"> 1. Have students read through the play in groups of 8 (or 4 with double roles if more convenient) 2. After the read through, take 8 student volunteers to perform the play as students add basic information to the “Big 7 fact sheet” handout. 3. After the play, go over the fact sheet on an overhead projector to make sure students got the essential information from the play. 4. Setting: TV Reporter Adam is at center stage. In turn, each indoor air pollutant comes over to be interviewed, while the other pollutants continue to lay in the background. 5. Adam: Hi, I’m Adam Mosphere (Mose-Fear). I’m here at (insert teacher’s name) home to cover a late breaking story. Eight of the world’s worst air pollutants are here to have their side of the story heard. In today’s special report, we’ll ask them tough questions to give you the scoop on where these pollutants come from and the ways they can hurt living things. http://www.earlychildhoodnews.com/earlychildhood/article_view.aspx?ArticleID=240 6. For environmental play scripts: <ul style="list-style-type: none"> • http://www.kidsinco.com/about/

4.4. Useful Links

- <http://www.kidsinco.com/about/>
- <http://www.pbs.org/opb/historydetectives/educators/technique-guide/writing-an-historical-poem/>
- <http://ellabakercenter.org/sites/default/files/downloads/RTFTeacherGuide.pdf>
- http://www.youtube.com/watch?feature=player_embedded&v=2SmF3B3734E
- <http://www.advocatesforyouth.org/for-professionals/lesson-plans-professionals/219-lessons>
- <http://www.dailystar.com.lb/News/Lebanon-News/2010/Mar-09/56697-lebanese-women-still-face-discrimination-study.ashx#axzz35vo3ioYZ>
- <http://privankamogul.com/2012/03/07/equality-for-women-lebanon/>
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- <http://www.poverties.org/effects-of-poverty.html>
- http://www.fayar.net/east/teacher.web/math/Illuminations/lessonplans/6-8/popdens/Pop_Density.PDF
- http://www.lessonplansinc.com/biology_lesson_plans_ecology_lab.php
- http://www.pbs.org/wgbh/nova/education/activities/3108_worldbal.html
- <http://www.tutorvista.com/content/biology/biology-i/natural-resources/natural-resourcesindex.php>
- www.nedies.net
- www.unesco.org
- www.afedonline.org
- www.afdc.org
- http://www.afed-ecoschool.org/web/FousoulDetails.aspx?Section_ID=1&Category=2

5. The list of sources and references

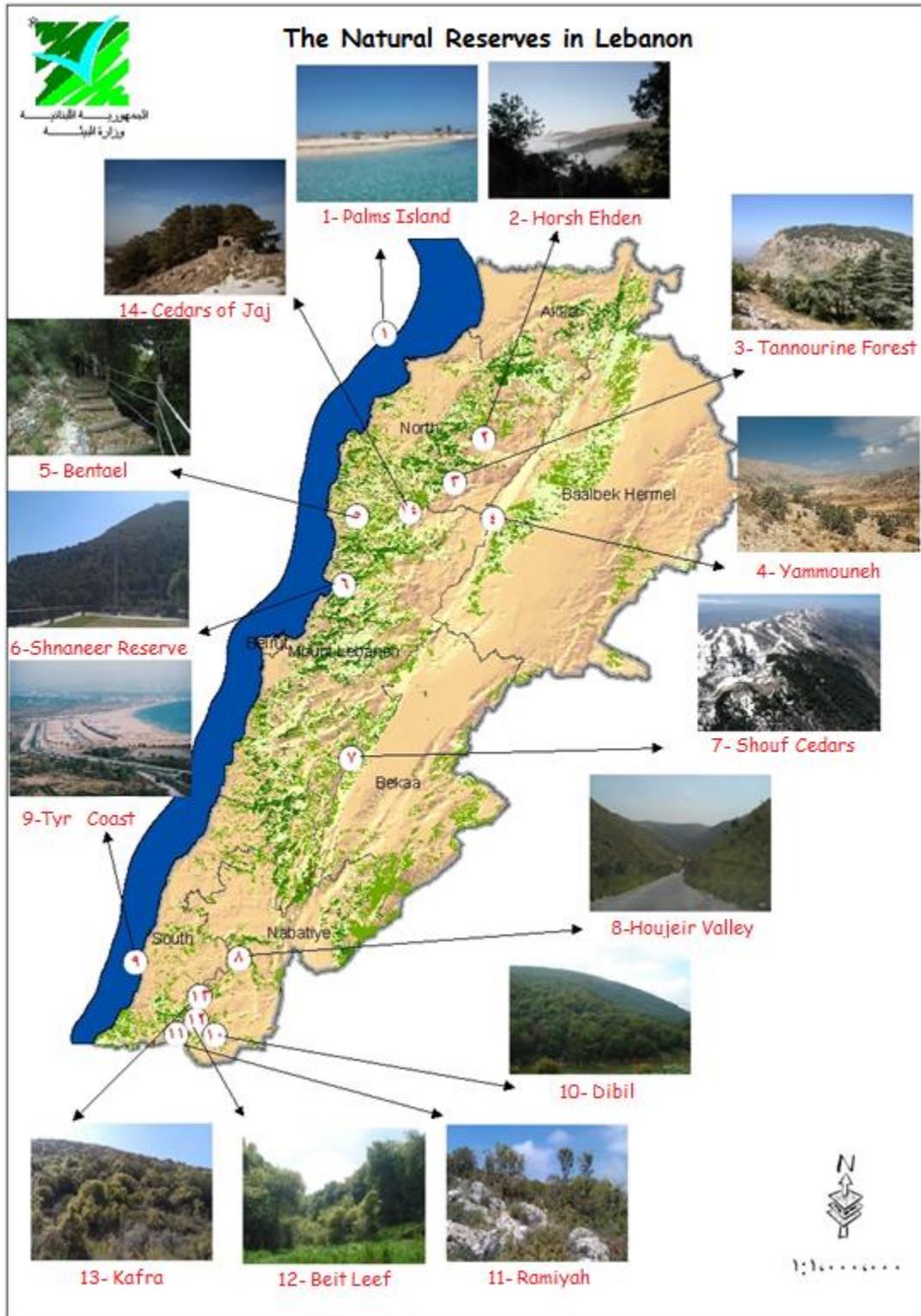
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- <http://www.uwex.edu/ces/4h/pubs/showdoc.cfm?documentid=11399>
- <http://www.globalissues.org/issue/2/causes-of-poverty>
- <http://www.freedrinkingwater.com/water-education/quality-water-standard.htm>
- <http://www.conserve-energy-future.com/PollutionTypes.php>
- <http://www.uncsd2012.org/history.html#sthash.vWtpT2TI.dpuf>
- <http://www.learner.org/workshops/tml/workshop7/teaching.html>
- http://www.educationworld.com/a_curr/strategy/strategy012.shtml
- http://bie.org/about/what_pbl
- <https://www.academicssupportplan.com/LearningStrategies.aspx?panel=roleplay&AspxAutoDetectCookieSupport=1>
- <http://www.earthcharterinaction.org/download/education/what-is-ESD.pdf>
- <http://www.uncsd2012.org/history.html#sthash.vWtpT2TI.dpuf>

6. Annexes

6.1. National and International Days

The first Sunday of January:	Arbor Day
March 10	National day of natural reserves
March 21	International Day for the forests and the Mediterranean Sea
March 22	World Water Day
March 23	The World Meteorological Day
March 26	Global Earth Hour
April 7	World Health Day
April 8	World Heritage Day
April 22	Earth Day
April 24	Environment Day for the Gulf region
April 26	International Day for Chernobyl
May 1	International Workers' Day
May 3	World Day Footprint
May 5	International Day for waterfowl
May 10 or 11	World Day of migratory birds
May 22	International Day for Biological Diversity
May 31	International Day for the Tobacco
June 5	World Environment Day
June 8	World Oceans Day
June 17	World Day to Combat Desertification
June 26	World Day to Combat Torture and drugs
July 11	World Population Day
August 9	International Day of Indigenous People
August 12	International Youth Day
September 16	International Day for the Protection of the Ozone Layer
September 22	Car Free Day
September 28	Green Consumer Day
October 6	(first Monday in October) World Habitat Day
October 12	International day for natural disasters prevention
October 14	Arab Environment Day
October 16	World Today on food
November 6	International Day for the preservation of the environment in war
November 20	World Today Rights of the Child
November 22	Independence holiday and rice
December 5	International Day of the Earth
December 11	International Mountain Day

6.2. Annex 2: Natural Reserves



6.3. Annex 3: Manual for Recycling

[Recycling Material manual](#)

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This kit has been reviewed by CERD (Center for Educational Research and Development)

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In the framework of the Project “Lebanese Youth as Messengers for Sustainability” Initiative to promote a culture of sustainability among the Lebanese children and young, their families and the local communities - AFKAR III Program