

THE YOUNG ECOLOGIST INITIATIVE

WATER MANUAL **Lesson Plans for** **Building Earth Democracy**

Dr. Vandana Shiva
Kevin Kester
Shreya Jani



Navdanya

"The primary goal of the 'Water for Life' Decade is to promote efforts to fulfill international commitments made on water and water-related issues by 2015...These commitments include the Millennium Development Goals to reduce by half the proportion of people without access to safe drinking water by 2015 and to stop unsustainable exploitation of water resources."

UN International Decade for Action 'Water for Life', 2005-2015

Water Manual: Lesson Plans for Building Earth Democracy

2007

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Qamar Dagar

Pani-written in Urdu and Devnagari script symbolizes synergy, interconnectivity and empowerment.

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INTRODUCTION: PURPOSE OF THIS

Learning Objective

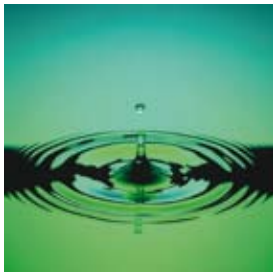
To become familiar with the manual, its background, purposes, how to use it, and explore the values of education that water reflects and enhances

Guiding Inquiry

- What is the purpose of this manual?
- What is the importance of water in our lives and society?
- What are learning activities that could be used in the classroom?

"...Water is a limited natural resource and a public good fundamental for life and health. The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights. The Committee has been confronted continually with the widespread denial of the right to water in developing as well as developed countries. Over one billion persons lack access to a basic water supply, while several billion do not have access to adequate sanitation, which is the primary cause of water contamination and diseases linked to water. The continuing contamination, depletion and unequal distribution of water is exacerbating existing poverty. States parties have to adopt effective measures to realize, without discrimination, the right to water, as set out in this general comment."

– UN Economic and Social Council, 2002



The Young Ecologist Water Manual is designed as an education tool directly addressing the urgent issue of water access, water rights, pollution, and privatization of the commons. (The commons refers to those resources

and supplies belonging equally to an entire community or culture, especially a common water-supply system.) This manual is intended to assist educators working in various spheres to address water issues through the lens of education. We especially aim this manual to educators teaching young people, because it is the young who are the inheritors of this beautiful planet.

We recognize that water is present daily in everyone's life and is possibly the most obvious evidence of our human interconnectivity—connecting people of all ages, races, caste, class, religion and creeds. Respectively, youth under the age of 25 across our globe now represent nearly half the global population, according to UNFPA (<http://www.unfpa.org/adolescents/index.htm>), and it is their future at stake in which education demands to have students active in the preparation of a common future. As such, The Young Ecologist aims to assist educators teaching elementary, middle, and high schools, and in other organizations similarly aimed at raising awareness, skills, and active participation among youth. This manual presents various tools, activities, frameworks, and lesson plans to aid teachers in the development of 'water' curriculum.

The framework and lesson plans included in this manual express our belief that ecology is deeply linked to social justice and environmental care. The discourse often centers on the mismanagement and privatization of water, yet this single issue has numerous consequences including the health of communities, degradation of the environment, and increased poverty of the disadvantaged, with women and children experiencing the grunt of the consequences. It is clear that the resolution of these concerns will need a comprehensive and cooperative approach. The Sardar Sarovar dam in Narmada is one example of the link between the management of water and its effect on communities and the environment.

In the following pages, educators will explore knowledge content, values, skills, and activities designed to capacitate students with an understanding of water conditions and conflicts in India. This includes the paramount task of easily relating these issues to the lives of students, and motivating within and with the young the engagement in possibilities of creating peaceful personal lifestyles and a commitment to preventing and resolving conflict around the issue of water. This manual is contextualized within the teaching practice that has evolved in the democratic, cooperative and peace education fields of recent decades. Such an education values active citizenship, students committed to solving problems nonviolently and leading lives that reflect values of cooperation, respect, empathy, interdependence, and compassion (these values are discussed later in the *conceptual framework and matrix* for cooperative education). As teachers and students learn more about water issues and become increasingly aware with each

learning activity, our hope is that they will begin to promote a commitment to asking questions, solving problems, taking action, and sharing the commons in a spirit of trust and cooperation.

As we explore water as a commons, we also explore that other common that links us all, within our families, our communities, our nations, our regions, and across the globe: that common is our common humanity. And this is reflected in the sharing of the commons. The recognition of our common humanity is necessary to protect and realize water rights.

Here at the end of this section we emphasize the need to protect the commons and the values that water represents. Water is at the center of our discussions and the values around it need to be highlighted in order to explain the urgency of water issues to be examined. This interactive manual is presented to educators with finalized lesson plans ready for immediate implementation into the classroom. The lesson plans are prepared for three levels of schooling: Elementary, Middle School, and High School, and focus on a variety of content courses, respectively tailored to each age group. Additional online resources have also been accumulated herein for quick reference (*see additional resources*).

We close this introduction with a reflection on the social values that water represents. What are the values of water reflected in our teaching? What is the underlying social purpose of our education? In this final paragraph, we ask you to reflect on the social purposes and educational values behind schooling and your role in the process. What are the values that we teach, particularly, when teaching in the context of this resource, about water access, pollution, scarcity, and dams?

Reflection: What values of human interaction does water reflect? What values are taught in our schools? In our classrooms? What values does water embody?

Diversity

How are these values appreciated, ignored, or violated in our schools, communities, and societies?

Do we teach for competition or cooperation? Or do we teach an efficient mixing of the two? Do we teach for individualism or collectivism? Or do we intertwine these values? Do we teach for a shared common or privatization to supply society with its needs? Do we teach for love and respect or greed? What values does water embody? What are the values behind our education?

Water Activities

Note for educators on facilitating these activities: The activities have 3 parts each, 1. introduction of the activity and ground rules for completing the activity, 2. completion of the activity with the educator "floating" around the room, and 3. reflection on the activities which also has typically 3 parts (A. what did we do? B. What does the activity, or how we completed the activity, tell us about ourselves, our group, and our environment? C. How do we apply this learning to our lives?

Floating—describes an educator who walks around the room and engages with students, answering questions, watching, and offering advice, as they complete tasks: as opposed to a teacher who steps back and disengages in the back of the classroom while students finish activities.

The Crazy River: Have students get into groups of 5-8, and line up like a river with one student at the front and another at the back. The students should hold onto to each other's shoulders or waist. Then instruct that all of the students will have their eyes closed during the activity except for the last person, the student at the back of the train. With their eyes closed they are asked to slowly walk around the room. They cannot speak with words, so in order to accomplish the task, they will need to create a system to communicate without words. The objective is to practice group communicating skills.

River of Nonviolence: Divide the class and draw a line across the center. Have the words "nonviolence" on one side and "violence" on the other side of the room. Students must choose a place on the spectrum between the two words to demonstrate their perspective on how to address water conflicts. Is violence legitimate? What legitimizes the use of violence? What are alternative violence? What are constructive and nonviolent solutions to the violence perpetuated by corporations and governments denying peoples access to sufficient and healthy water?

Classroom Charter: Have participants collectively create a Charter that outlines how they believe conflicts should be handled in the classroom and consequently

water conflicts. The participants will first prepare a rough proposal of 3-4 points in groups of 3-4. They will then be asked to read a few of these points aloud to the class. Finally, all of the participants will decide collectively which principles are included in the Charter and, if needed, propose additional principles. The Charter should be displayed on the wall(s) of the classroom during the water modules.

Guiding Questions:

- What principles should guide our interaction in daily life concerning water conflicts?
- Can we group/categorize the principles based on similarities?
- Are the principles equal in importance?
- How do we list the principles? By priority?
- What should we do with the principles?
- How do they relate to life beyond this class? In schools? In businesses? In NGOs? In governments?

The objective is to create a Charter to outline cooperative classroom practices and conflict resolution skills.

Storytelling: Begin with a story by the instructor highlighting an experience of a water conflict in his/her life. This storytelling session will create a space of trust between the students and instructor as the instructor shows willingness to share personal stories of adversity, and it will emphasize the importance of storytelling as an act of community-building. Using this story as a catalyst, students will consider water conflicts in their own lives when discussing the headings that follow. The objective is to build trust and learn more about each member of the class.

Superhero Cartoon: Give students a prompt to draw a water superhero. Each hero should have a name, superpower, and be in action. The students can compare their heroes to friends creations and play with them together.

Interconnectivity: With a model landscape and a bottle of water, illustrate with students how the water source in one town connects to citizens in another town. Pour the water in the circular basin representing a lake and watch as the water flows through the tributaries to nearby villages. Then, to emphasize water conflicts, illustrate what happens when the waterways are blocked by dams or the lake dried.

Peace Poems: In a poem of environmental peace students articulate what peace with water resources looks and feels like. This effective activity reinforces the importance of the arts in learning and living.

Reflection exercises: Ask students to reflect in groups of 2-4 about where they receive their water from, who cleanses it, how is it cleansed, what is the original source, who controls that source, how did they acquire control, etc. This may also be done in solitude, and students may keep journals over the duration of the course, asking them to write routinely.

A Water Riddle: You have 2 buckets: a 3 gallon bucket and a 5 gallon bucket. You have only these 2 buckets and your need to get water. With these 2 buckets you must get exactly 4 gallons of water at the river to take home for dinner. You cannot have more than 4 gallons and you cannot have less than 4 gallons. It must be exactly 4 gallons (no approximations). How do you get exactly 4 gallons of water in the bucket to take home? (Answer: fill the 3 gallon bucket full and pour it into the 5 gallon bucket. With the 3 gallon bucket empty again fill it up full one more time. Now pour 2 gallons from the 3 gallon bucket into the 5 gallon bucket. This makes the 5 gallon bucket full and leave you 1 gallon in the 3 gallon bucket. Now empty the 5 gallon bucket back into the river and pour the 1 gallon of water from the 3 gallon bucket into the 5 gallon bucket. Fill the 3 gallon bucket again and pour it into the 5 gallon bucket. You now have exactly 4 gallons of water in the 5 gallon bucket!)

BACKGROUND ON WATER AND ECOLOGY

Learning Objective

Explore water as a commons and potential for conflict and cooperation, and introduce water topics and talking points

Guiding Inquiry

- What does it mean for water to be called a ‘common’?
- What are some of the water issues in India?
- What are specific content areas that could be explored in the design of water curriculum?
- How might these issues relate across the globe?
- What are learning activities that could be used in the classroom?

"...The State shall not discriminate against any citizen on grounds only of religion, race, caste, sex, place of birth or any of them...No citizen shall be subject to any disability, liability, restriction or condition with regard to the use of wells, tanks, bathing ghats, roads and places of public resort maintained wholly or partly out of State funds or dedicated to the use of the general public. (Article 15b)...The State shall, in particular, direct its policy towards securing that the ownership and control of the material resources of the community are so distributed as best to subserve the common good." (Article 39b)

– Constitution of India



The quotation above clearly states the position of the government and peoples who drafted the Constitution of India in their recognition that all citizens should have access to wells and healthy water. The signers recognized, as do the educators of The Young Ecologist, that water is a natural resource

around which life thrives and communities are constructed: the Nile Delta in Egypt, the Ganges and Indus rivers in India, the Mississippi in the United States, Amazon in Brasil. Water is often not articulated as such but is perhaps the most urgent need and right to life. Water is indiscriminate and speaks a simple language of creativity, freedom, consciousness, empowerment and interconnectivity for young and old alike. As a human necessity water is then potential for conflict and cooperation. The conflict sometimes becomes so great that it erupts into acts of violence, violence around controlling, distributing, and ensuring access to waters. Interestingly, in most cases where water erupts into conflict it is intra-state and regional conflict rather than international. Hence our schools need to educate youth for cooperation among water divisions. The water basins, rivers, and reservoirs may be used to negotiate a shared commons.

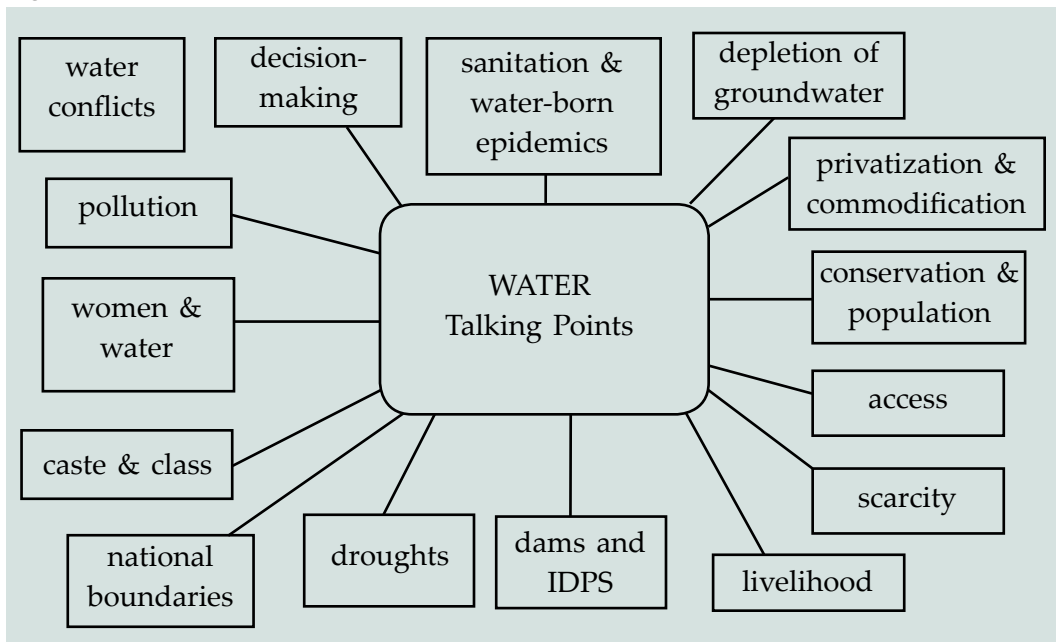
The privatization of water is one of the foremost threats to water access and rights. When the essence of life or a common becomes a commodity then a democracy is disenfranchised. Privatizing water by putting the control of water distribution and supply in the hands of private companies or relying on bottled water for drinking is one manifestation of this phenomenon. Water belongs to all and the lack or inability of the state to provide it to its citizen does not mean that the problem is one for the private sector to handle but rather is an indication that communities have to be empowered by the government. Water is calling us to recognize our interconnectivity and work together to ensure a just and equitable future for all. In order to do this The Young Ecologist has resolved to education for peacebuilding and cooperation.

In India in 1948, a partition between India and Pakistan left the Indus basin divided. The evolving tensions in the Kashmir region have demanded delicate measures to maintain peace, human security, and social justice. In 1960 the Indus Waters Treaty was signed to resolve disputes over water control in Kashmir, calling for mutual cooperation. As a life force water is both a necessity for life and offers reflection on our life connections and dependence on each other. In this way, as students and teachers we can consider how water, in terms of health, pollution, and gender and domestic arenas, could be used as a topic of discussion in our classrooms, and how it relates to other issues in our lives, such as politics, globalization, and economies. What is our dependence on water? What does water do for us? How do we share this resource? What other analogies do we take from these discussions? How is water a metaphor for the interconnection of global economies, religions, states, and privileges? Where does water connect us? Internationally, waterways are also theatres for conflict and violence concerning those who control the waterways, such as the Panama and Suez Canals, certain Straights between nations, and piracy in the seas. But

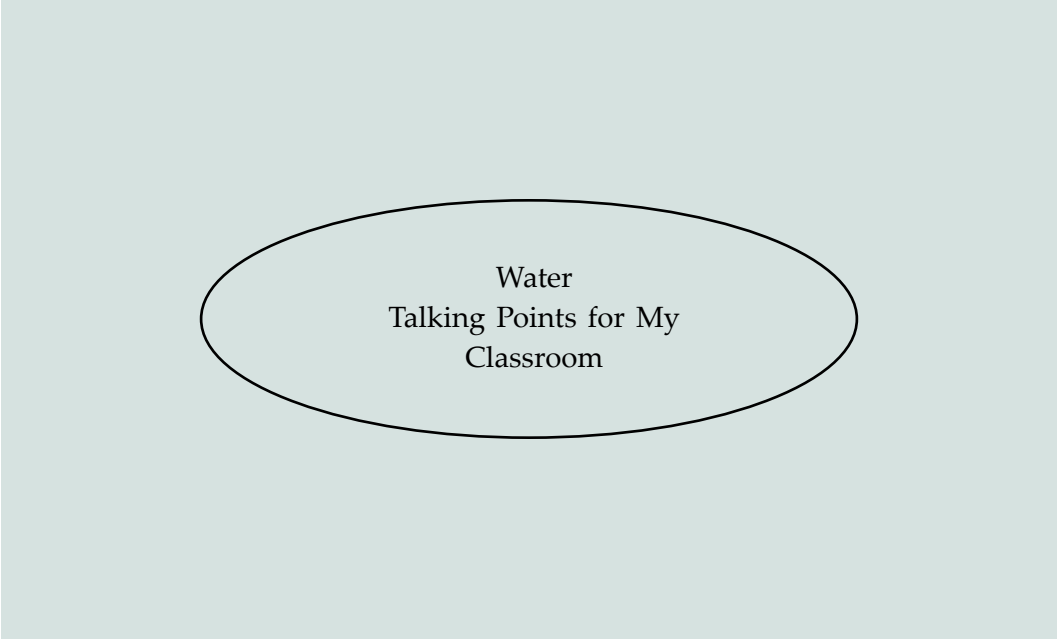
water is also an arena for cooperation.

One innovative approach to the drying of groundwater and the onslaught of droughts that has been conceived and utilized in recent years is rainwater harvesting. This technique embodies the philosophy of The Young Ecologist and cooperative education. It is participatory, equitable, and seeks to make everyone concerned about water. The process works by using the source of water: rain, and the times that rain falls in India: the monsoon. To leverage the great amount of rainfall that passes quickly, basins are constructed to catch and store the water for the dry seasons. To read more about the concept, read <http://www.rainwaterharvesting.org/>. The substantive content of the lessons will focus on water, yet the order of the class is a collaborative approach open to input from students to ensure that students are focusing on water issues pertinent and important to them. To realize this and the learning objectives above, the content of classes is centered on talking points as suggested as areas of discussion. Around these talking points the classes and discussions can evolve. To this end, the knowledge content explored, presented through the talking points, is intended to assist educators in adding water discussions and activities into their classroom. Talking points are listed in the diagram (Fig. 1) as suggested points of departure for the teacher to use as in creating class lessons and maintaining a focus on water

Figure 1



(Using the blank box below brainstorm the talking points relevant to your classroom and teaching context.)



Water
Talking Points for My
Classroom

education.

We end this section on knowledge content with a reflection on 5 facts about water, listed below. These facts may be shared with students and are reflective points for educators as life-long learners. How can we use these points in our teaching (some of these are illustrated in the lessons that follow)? How have these facts changed since our youth? What do we take from the points listed below? And how can we use talking points as a teaching method?

5 Facts about Water

- 75 % of the earth is covered with water.
- 97 % of earth's water is in the oceans. Only 3 % of the earth's water can be used as drinking water. 75 % of the world's fresh water is frozen in the polar ice caps.
- Although a person can live without food for more than a month, a person can only live without water for approximately one week.
- Sources of water pollution include: oil spills, fertilizer and agricultural run-off, sewage, stormwater, and industrial wastes.
- More than 5 million people die each year from sicknesses caused by drinking unsafe water. Many of those who die are children.

Water Activities

Brainstorming and Discussion: Discuss the multiple forms of water conflicts in our lives under the following headings. Examples include personal, interpersonal, corporate, governmental, and international. These are not merely personal acts but also governmental enforcements as well as corporate-based injustices. Record the responses on the whiteboard, poster paper, etc.

- Water conflicts in our town/community
- Water violence against children
- Water violence against women/men
- Personal over-consumption
- Water conflicts in schools
- Water conflicts in homes
- Water conflicts between groups
- Water conflicts in another country
- Water conflicts between countries
- Water conflicts by corporations

The objective is to explore thoroughly the multiple forms of water conflicts that impact everyone. The forms of water conflict one student experiences are probably equally experienced by others.

Brainstorming: Have students brainstorm the various problems that may arise via dams, droughts, and waste dumps, and ways to mitigate the dilemma of losing water and contaminating it. The students can discuss this in groups of 3-5 and present their ideas to the remainder of the class. The objective here is for students to brainstorm possible problems arising from water limitations, overuse, and damming.

Mapping your community and water: With a large sheet of poster paper have students individually draw a representation of their community, including homes, stores, shops, schools, and water sources, i.e. rivers, streams, lakes, reservoirs. What is at the center of your town? Where does your water come from? Students should share their drawings with the class and describe where their water comes from.

Using quotes for discussion: Choose many different quotes about water from famous sources, such as politicians, actors, etc., or from religions, organizations, etc. Write the quotes on sheets of paper and hand them out randomly to different members of the class. Ask those students to read the quotes aloud and discuss

them. What does it mean? Who said it? Why did they say it? How do we feel/relate to it? The objective of this activity is to reflect on thoughts from various sources concerning the issue of water.

Using literature and movies: The instructor could find short stories, novels, or movies relating to water issues and have students read/watch these works. Discuss the pieces with debriefing questions. Eg Thakur Ka Kuan – Premchand,

Pictures: Using (water) pictures as prompts have students discuss in groups the scene(s) in the pictures. What is going on? Who is in the picture? What are they doing? What is their objective? The purpose of this activity is to generate discussions around water issues (as selected by the instructor according to the nature of the pictures, i.e. if the interest is sewage or pollution, select pictures of children playing in contaminated waters or water basins beside industrial factories).

Sharing experiences with water accessibility and scarcity: In pairs, students will share their experiences with water accessibility, scarcity, and livelihood. The students will share experiences in which they learned about water accessibility, scarcity, and livelihood. Following, the discussions, students will introduce their partners' experience(s) (with permission). The objective of this is to reflect on how each of us has or may soon experience these issues surrounding water.

Read and Run: Prepare a handout of questions relating to water accessibility, caste, class, women, etc., with missing words. The handout and selected vocabulary should relate to the concept of water. Put students into pairs and tell them that 1 student will need to remain stationary in his/her seat with the handout, and the other student is expected to walk around the room and look at pictures which have the answers to the missing blanks on the sheet (the student walking around the room does not have a copy of the worksheet). When the mobile student feels that he/she has the answer he/she takes that answer back to the stationary student, who then writes the answer in the blank on the handout. This is repeated until the worksheet is completed. Finish the activity with a follow-up assessment making sure the answers are correct.

Value cards (Where does water fall in global values?): What are the priorities for global spending (i.e. Sewage management, Make-up creams, Education)? Students are given a set of cards and asked to put them in order from "most amount of money spent on" to "least amount of money spent on." This should take about 15 minutes. After the groups finish their order, the teacher reveals the actual order according to country data. Debrief with a series of questions: What is surprising from this order? What beliefs and national/global order lead

to such emphasis? Then ask students to place the cards into the order in which they believe the cards should fall, and to develop potential action plans to make this a reality. What values and behaviours need to be realized to create this world?

The cards:

- Pet food in Europe
- Cigarettes in Europe
- Basic Health and Nutrition
- Perfumes in Europe and US
- Women's reproductive health
- Military spending in the world
- Narcotics in the world
- Business entertainment in Japan
- Alcohol in Europe
- Ice Cream in Europe
- Water and Sanitation for All
- Cosmetics in Europe
- Basic education

The correct order and spending:

1. Military spending in the world (956 billion USD; US contribution, 466b)
2. Narcotics in the world (400b)
3. Alcohol in Europe (105b)
4. Cigarettes in Europe (50b)
5. Business Entertainment in Japan (35b)
6. Pet food in Europe (17b)
7. Basic Health and Nutrition (13b)
8. Perfumes in Europe and US (12b)
9. Women's reproductive health (12b)
10. Ice cream in Europe (11b)
11. Water and sanitation for all (9b)
12. Cosmetics in Europe (8b)
13. Basic Education (6b)

Values continuum: Using the whiteboard/blackboard the teacher writes *Just* on one side of the blackboard and *Unjust* on the other side of the blackboard. Draw a thick line connecting *Just* and *Unjust*. Students may be asked to write different water points/issues along the continuum reflecting their beliefs. Then the teacher gives students pictures of dams, bottled water, corporation logos, polluted waters, health-stricken people, and they are asked to line up along the continuum and place their picture where they believe it falls within the continuum. This activity may be completed with the values cards above.

Role Plays: Students act out a specific water conflict, whether real to their experience or a fictional disagreement the students or teacher create. Have students first create scenarios in groups of 4-5, practice the scenes, and present to the class.

Theatre in the Classroom

Storytelling Alternative Endings and Role-plays:

The instructor or student(s) are elicited to share a story about a water conflict involving a family, community, corporation, or governments, with one or many parties. After the speaker finishes sharing the story, the other students brainstorm an alternative ending to the story, one that would lead to a better or more cooperative ending. The students may then act out the story in its original version and with the new endings proposed by classmates.

FRAMEWORK FOR WATER COOPERATION



Learning Objective

To explore a democratic and cooperative framework for water education

Guiding Inquiry

- What are the objectives of teaching about water issues?
- What could be included in lessons aimed at teaching about water?
- What do national and international documents have to say about water?
- What are learning activities that could be used in the classroom?

Of the values of cooperation, respect, empathy, and love previously discussed, The Young Ecologist emphasizes the following eight objectives for education on water scarcity and conflicts. An education for democratic participation and cooperation seeks to give students knowledge, values, skills, and capacities (a sample outline follows in the matrix on the next page) to actively problem-solve issues of concern. Consequently, at the end of education on water empowerment, students will be able to:

- *Promote* care for the community of life with understanding, compassion and love
- *Build* democratic societies that are just and participatory
- *Conscientize* the young about the importance of water and all the values associated with it
- *Raise* awareness of the multiple perspectives of peace and water conflicts
- *Discuss* the role of gender, class, caste, and other minorities in water conflicts

- *Consider* national constitutional rights and human rights instruments to better understand the role of law in protecting water rights and facilitating justice
- *Grapple* with the notion of diversity and empathy for others
- *Reflect* on universal responsibility and individual responsibility within the commons

This resource we hope will help educators in delving deeper into water issues and knitting such issues into the lessons carried out daily in the classroom in order to assist in the formation of better societies. Yet this manual is not intended as a definitive approach to water issues and peacebuilding curriculum. Therefore, the above matrix is intended merely as a useful sample, and The Young Ecologist offers the space below for teachers to consider the knowledge, values, skills, and pedagogy to be included in their specific classroom contexts.

MODULE	KNOWLEDGE	VALUES	SKILLS	PEDAGOGY
English (60 minute session)				<i>Brainstorming Inquiry/ Discussion Storytelling Role-play</i>
Social Science (60 minute session)		<i>Cooperation Empathy Respect Nonviolence</i>		<i>Jigsaw Class discussions Reflective journals Envisioning</i>
Math (60 minute session)	<i>Understand social values as seen through national/global govt. expenses</i>			
Science (60 minute session)			<i>Discuss multiple forms of ecological violence and social injustice</i>	

This manual organizes knowledge content and lesson plans within a comprehensive framework around the core of cooperative education with the ultimate goal of creating nonviolent, creative solutions to water conflicts. The

cooperative education framework is organized around four main pillars: actors, content, resources, and objectives (*see Fig. 2*). The actors encompass those involved at the local and national level, including students, parents, schoolteachers, NGOs, and government. These actors network with each other and work with the resources available to educate about water, waste management, the environment, diversity, etc., for the objectives of fostering attitudes and behaviors consistent with peacebuilding around water resources. The attitudes of respect, love, and empathy are reflected in behaviors of cooperation, nonviolence, open dialogue, and reflective practice. The institutions involved in the educative process must also exhibit these characteristics.

In this section we focus on integrating supporting documents into curriculum as a complement to the knowledge content, or as the content itself, with which lessons may be constructed. There are many national and international documents, such as the Indian Constitution and Declaration of Human Rights (1949) that articulate and are intended to protect the rights of individuals. When using this technique to introduce students to these documents it is often best to begin with a local document. First introduce the talking points and discussions or activities using the Constitution of India to assess if any of the rights are being violated in the event/incident being discussed (students may complete this task through reading activities and group discussions to map the rights that have been violated). You may then wish to move onto the Universal Declaration of Human Rights (1948) and other international documents focusing on water rights supported by treaties, covenants, and declarations. Several of the documents are highlighted below. Using these documents provide opportunities for learners to assess violations of rights and responsibilities.

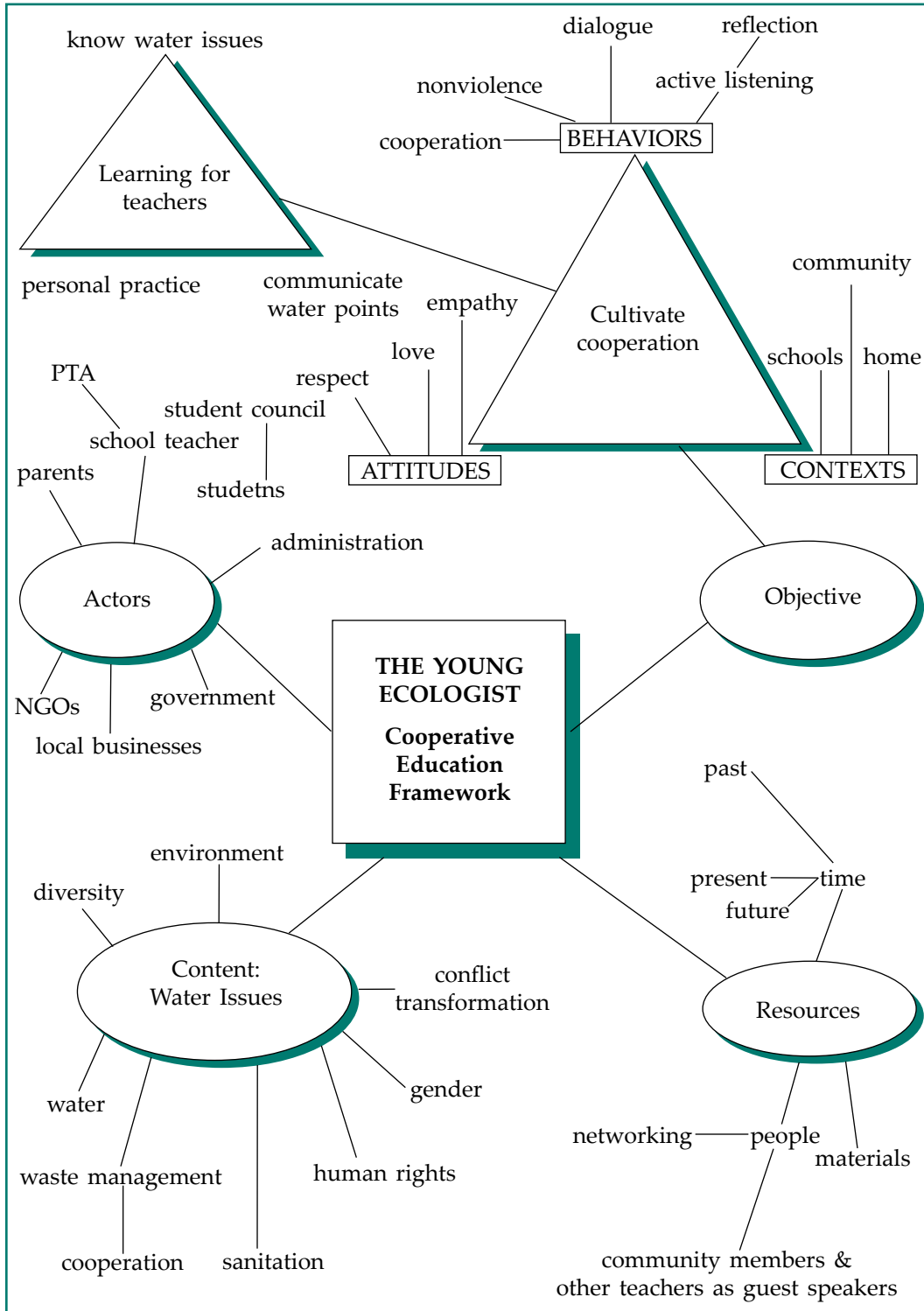
The Constitution of India

The Constitution of India was adopted in 1949 to secure justice, liberty, and equality for all its citizens. It may be visited at:[http://lawmin.nic.in/legislative/Art1-242%20\(1-88\).doc](http://lawmin.nic.in/legislative/Art1-242%20(1-88).doc). The document states:

Article 15. Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth.—(1) The State shall not discriminate against any citizen on grounds only of religion, race, caste, sex, place of birth or any of them, be subject to any disability, liability, restriction or condition with regard to—

(a) access to shops, public restaurants, hotels and places of public entertainment; or

Figure 2. Conceptual Framework of the Water Cooperative Education Manual



- (b) the use of wells, tanks, bathing ghats, roads and places of public resort maintained wholly or partly out of State funds or dedicated to the use of the general public.

Article 38. State to secure a social order for the promotion of welfare of the people.—

- (1) The State shall strive to promote the welfare of the people by securing and protecting as effectively as it may a social order in which justice, social, economic and political, shall inform all the institutions of the national life.
- (2) The State shall, in particular, strive to minimise the inequalities in income, and endeavour to eliminate inequalities in status, facilities and opportunities, not only amongst individuals but also amongst groups of people residing in different areas or engaged in different vocations.

Universal Declaration of Human Rights

In 1948 the United Nations drafted and adopted the *Universal Declaration of Human Rights* (UDHR) as a set of common goals to guide all the nations of world society, and to ensure the fundamental social, cultural, economic, and political conditions necessary to protect the life, needs, and dignity of all people. Following this historic act the Assembly called upon all Member countries to publicize the text of the Declaration and "to cause it to be disseminated, displayed, read and expounded principally in schools and other educational institutions, without distinction based on the political status of countries or territories." The Declaration may be visited at: <http://www.un.org/Overview/rights.html>.

Article 22 of the Declaration affirms "Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality."

The Earth Charter

The Earth Charter is a declaration of fundamental principles for building a just sustainable and peaceful global society in the 21st Century. The initiative for the Charter began in the later 1980s and came to its head in the 1990s under the leadership of Mikhail Gorbachev, Maurice Strong, and the support of the government of the Netherlands. It came into place in 2000 after a decade long consultative collaboration of experts. The Earth Charter aims to instill values and attitudes among humanity that can help societies live a sustainable life without the degradation of Mother Nature. The Earth Charter is based on 7 core themes, namely: Valuing the entire Community of life, Using non-violence as a path way to peace, Internalizing the notion of Universal Responsibility, Recognizing the interdependence of social, economic and environmental domains, Acting with ecological integrity and protecting the environment, Seeing the critical challenges and choices.

The Earth Charter home is at: <http://www.earthcharter.org/>. The Charter may be read in English at: http://www.earthcharterinaction.org/assets/pdf/charter/chater_eng.pdf; and in Hindi at: http://www.earthcharterinaction.org/assets/pdf/charter/charter_hin.pdf.

The Hague Appeal for Peace

In 1999 over 10,000 people and organizations met in Hague, Netherlands, to discuss new strategies for achieving and maintaining peace in the 21st Century. The Hague Appeal may be seen at: <http://www.haguepeace.org/>. It was a monumental occasion, and through this conference, the Hague Agenda for Peace, a 50-point document of strategies for peacebuilding, was drafted and subsequently adopted by the United Nations to inform actions by governments and civil society. The Hague Agenda may be read in English at: <http://www.haguepeace.org/resources/HagueAgendaPeace+Justice4The21stCentury.pdf>; and in French at <http://www.haguepeace.org/resources/HAP%20Agenda%20French.pdf>.

The Hague Agenda states "It is time to redefine security in terms of human and ecological needs instead of national sovereignty and

national borders. Redirecting funds from armaments into human security and sustainable development will establish new priorities leading to the construction of a new social order which ensures the equal participation of marginalized groups, including women and indigenous people, restricts use of military force, and moves toward collective global security."

Additionally, the Convention on the Rights of the Child (1989) says:

To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution.... <http://www.unhchr.ch/html/menu3/b/k2crc.htm>

And the General Comment 15 (2002) of the UN Economic and Social Council states:

The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, to reduce the risk of water-related disease and to provide for consumption, cooking, personal and domestic hygienic requirements. (<http://www.unhchr.ch/tbs/doc.nsf/0/a5458d1d1bbd713fc1256cc400389e94?Opendocument>)

There are also numerous other international documents, treaties and declarations that address some aspect of water as a human right, including: the Geneva Convention, the Millennium Development Goals (<http://www.un.org/millenniumgoals/>), the U.N. Declaration on the Right to Development (<http://www.unhchr.ch/html/menu3/b/74.htm>), the UN World Water Assessment Report, the Convention on the Rights of the Child, and the Vienna Declaration at the World Conference on Human Rights.

These documents are used to ask the critical questions of: What are the underlying causes of water conflicts? Who is responsible? What are our rights? How do we realize these rights? What are our responsibilities? What can we do about it? This critical inquiry informs a comprehensive practice of education for cooperation and peace. This education is critical and accountable and recognizes the role of individuals within systems and their responsibility for ensuring equity, fairness, and care for others. This is reflective cooperative education. We end this

section with 2 allegories for reflection. These could also be used in the classroom to generate discussion.

"Two Wolves" Allegory: A Native American grandfather was talking to his young grandson. He told the boy, "I have two wolves struggling with each other inside of me. The first is the wolf of peace, love and kindness. The other wolf is fear, greed and hatred." "Which wolf will win, grandfather?" asks the young boy. "Whichever one I feed," he replies.

Gandhi's giving: Mahatma Gandhi was boarding a train. He lost a shoe. The train was already moving, and he could not go back to pick it up. He quickly took off his other shoe and threw it back near where he had lost the first one. A passenger asked, "Why did you do that?" Gandhi said, "So that the poor chap who finds my shoe will have a pair."

LESSON PLANS FOR WATER

Learning Objective

To share lesson plans for classroom teachers to use for teaching water issues

Guiding Inquiry

- How is the learning sequence of the water lessons organized?
- What are sample lesson plans for elementary school?
- What are sample lesson plans for middle school?
- What are sample lesson plans for high school?

The 13 lessons following are organized in a lesson plan template constructed within the previously discussed framework, and are based on the notion that education should be cooperative, democratic and exploratory inquiry into social issues. As such the framework opens with a statement of the particular issue to be discussed. In the case of this manual the issues center on water resources, reservoirs, dams, corporate ownership, and government responsibility. Following the statement of the issue is the level/context of the learning, supporting documents, and the objectives of the learning. Critical and cooperative education in this framework recognizes the importance of the level and context in which education takes place. Thus these lessons may be applied in any setting so long as they take into consideration the particular needs, hurdles to, and aspirations of water in that context. Educators should be sensitive to this and tailor their lesson plans (and adapt those herein) to accommodate their specific learning environment. This is especially important when it concerns different regions of India, those currently in direct, physical conflict over water and those regions under structural conditions that support inequalities, inhibiting peaceful control of water resources.

The teaching procedure is then revealed step-by-step, illustrating the learning sequence and which supporting documents/materials are to be used. The Young Ecologist posits participatory education is the most effective means of preparing

students for active participation in social change processes. To this measure, the classes should be conducted through active means, including storytelling, brainstorming, group work, jigsaw, dialogue, and theatre to facilitate learning for social transformation. The teacher and students will explore social issues in relation to violent degradation of the environment and control of water sources leading to cultural dissonance, structural violence, and resistance movements. The timeframe of activities and discussions is open to the teachers' discretion to allow for the issues to be addressed in a proper manner. We finally posit that critical education necessitates active reflection for the learners and the educators. The ending section of each lesson has a reflective wrap-up and a reflective box for educators to consider the class' response to the lessons and adapt necessary parts.

LESSON PLANS



THE YOUNG ECOLOGIST SCIENCE LESSON

Introduction: Cooperative education, with a focus on holistic education, believes it necessary to address water issues from as many perspectives as possible in order to create comprehensive solutions to problems. As such this lesson looks at water dilemmas through the lens of Science. This field often considers the price, quality, and quantity of resources, as well as the fair, equitable, and healthy distribution of these resources. In this lesson for Elementary school students, the focus considers reflections on the percentage of water available as safe drinking water.

Level: Elementary School

Materials: Milk jug, ice (if available), salt, spoons, cups, and vinegar

Objectives:

Students will do the following by the end of the lesson:

- Raise awareness to water as a precious and limited resource
- Reflect on the scarcity of water available for human consumption

Procedures Followed

Warm-up Activity

Ask students a series of 3-4 questions about where they receive their water from: Where does water come from? How do we get it? Who gives us water? Does it cost money? How much is it? Why does it cost money? What do we do with water? When do we use it? This may also be done in solitude, and students may write in journals each night or at the end of the school day.

Activity 1

With a clear milk jug, or clear bottle, fill the container almost full with water to

represent 97% of Earth's water as salt water (you can add salt to make the point). Then add a few teaspoons of water (or ice if available) to represent the polar ice caps which lock much of water and make it unavailable for drinking. Finish by adding 1 teaspoon of water to represent the amount of water available for drinking. Note: Only 3% of the Earth's water can be used as drinking water. (To make the point more obvious you may wish to add cooking oil to the top of the jug rather than water. In this way the salt water, ice, and oil as 'drinking water' will be made more clear because the components will be visibly separated.)

Activity 2

After the above demonstration, use this activity to illustrate how pollution and contamination lessen the amount of water ready for human consumption. With 3 different cups of water, make 3 different solutions: a) fill the first cup with only water, b) fill the second cup with $\frac{1}{2}$ vinegar and $\frac{1}{2}$ water, and c) fill the 3rd cup with only vinegar. Have the students prepare the measurements and solutions in groups. The students may then take a sip of the water or vinegar if they wish. For further emphasis, place the cups on a sink, or in a safe place, for a week and have the students observe the change in the water day by day.

Reflection wrap-up

Reflect on the contamination of water resources with oil products, faecal matter, and other wastes that prevent people from consuming fresh water. What will happen if we pollute our water sources? How easy is it to pollute our streams and lakes? Who will be affected? How can we prevent this from happening?

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST ENGLISH LESSON

Introduction: Creating solutions to difficult problems demands the capacity to envision possibilities and think proactively. This also requires the ability to recognize that all effects have causes and all causes effects, and thusly the realization that we have a whole slew of actions possible from which probable effects will follow. Futures thinking and image activities are used to collectively create possibilities: possible, probable, and preferable solutions. In the classroom this activity helps students reflect on past events and potential of preparation. This lesson plan uses creative writing as a tool for envisioning better futures. The students will listen to a water story and then write one of their own.

Level: Elementary/Middle School

Materials: Paper, Pencils, Movie clip/Short Film, TV, DVD player/Recorder

Objectives:

Students will do the following by the end of the lesson:

- *Promote* care for the community of life with understanding, compassion and love
- *Creative* solutions to water problems

Procedures Followed

Warm-up Activity

Blank Cartoons: With a given cartoon, pictures completed but without commentary, ask students to fill in the conversation, using water as the topic. Students may say what they want in completing the series of pictures. As an adaptation, students may be given the captions instead of the pictures and asked to draw the scenes.

Activity 1

Read the following short story to the students:

Mer: The Water Witch who Hated Water

Malynda J. Walker

(From <http://www.authorsden.com/visit/viewshortstory.asp?AuthorID=6085>)

Mer, a powerful witch who didn't know just how powerful, always lived on the island of Violeta Delfin. As far as she knew, this was the entirety of the land on the planet

and the rest was completely consumed by water. Mer had watched the rain pour nearly every day and the waterfalls gush and the rivers flow and the lakes grow and the ocean tides come and go. She felt in her very core that the water was trying to do away with the earth, the very foundation of Mer's Violeta Delfin. Every day Mer waited to be overcome by the water. One day, very soon, Mer's heart would swell with the power of water despite herself.

On the gloomiest day Mer could ever remember on Violeta Delfin, the villagers were faced with severe flooding. Mer, being the most fit, offered to go down to the shore to collect sand for the sand bags. As much as she did not want to face all that water, she cared much more for her villagers than being a little wet. She ran as quickly as she could, following the river to the sea.

Mer knelt down filling bag after bag with sand never taking her eyes off the ocean. She watched enormous waves crash near to her and the fear inside her swelled. Just as she was filling her last bag, she was swept up by the waves and pulled far from her beloved Violeta Delfin.

Upon surfacing and catching her breath, she cursed the water. Just as she was to deliver her final blow and banish all water from her homeland, she felt a little nudge at her back and screamed! After regaining her composure, Mer's eyes adjusted to the storm and fell upon a beautiful lavender dolphin. The dolphin said, do not be frightened. I am but a humble dolphin. You are Mer, the most powerful Water Witch of all. Why do you fear the sea and me? At this point, the storm calmed and a lovely rainbow appeared.

Mer was completely taken aback by a sea creature who could speak so intelligibly and the fact that he knew her name. She asked him what he meant of her being a Water Witch. I detest the water. It floods our lands, it weathers away our island, it drowns our people... What use would I have with water in my Craft? Take me home at once!?

The dolphin agreed to carry her home safely if she would give him a chance to show her the power of water. Mer, knowing this was her only way to make it safely home decided to listen. The dolphin shared his thoughts and knowledge of the sea and soon was joined by a giant sea turtle. The turtle shared his knowledge and feelings and was joined by a lobster who shared his knowledge and feelings. Then came the mackerel, the barracuda, the shark, the mussel, the sea slug, the sea cucumber and soon every creature of the sea, residing above, below, near and within, had shared their love and knowledge of water, including Mer's island ancestors. Mer was overcome by the power and gifts of water as the creatures spoke and wept over how blind she had been. The creatures knew the best thing for Mer was to bring her home so she could contemplate all she had learned.

As her feet touched the land of Violeta Delfin, she vowed to her new friends to live in harmony with water, to use its gifts wisely, to share this knowledge with her people and to visit often. She said her farewells and was about to set off home when

she remembered the rainbow. "Where did the rainbow come from?" asked Mer. The dolphin replied, "That too is a gift of water, my dear." With this she ran off to share the news with the villagers of Violeta Delfin.

After she regaled her tale, the elders took her aside to speak with her. They explained that the lavender dolphin she had met with was the spirit of the sea itself for whom her island was named and by who it was protected. Only a few had ever seen the dolphin and they were those blessed as Water Witches. She had come of age and come into her power. The gifts of water were hers to aid the island and her people so long as used them wisely. We are Mer's people and her gifts belong to us all through the grace of water. Mer has graciously written this knowledge down and you are privileged to possess them within this text.

Mer's Gifts of Water

Water cleanses and purifies our bodies, minds and souls.

Harmony with water brings great love and compassion for all life.

Work with water brings greater intuition, wisdom and strength of our divine gifts.

The flow of water is the flow of creativity.

Water heals our bodies, minds and souls.

Without water, no life could exist for it nourishes all animals, plants, minerals and humans inside and out.

I hope that Mer and her sea friends have inspired you to get in touch with the element of water. May you be filled with all its gifts and come to use them wisely and ethically!

Activity 2

Following the reading of the story, ask students to create their own "water hero." They may draw the character, give him/her a superpower, and a super action. After the students create a character ask them to draw and color the figures on a sheet of hard paper. Cut out the figures and glue them to sticks to create puppets. With the puppets then ask the students to write a story using the puppet as its main character and water as the topic. The story should be 2-4 paragraphs in length. (Begin this by giving the students a prompt, the beginning of a story, and ask them to finish writing it. For example, you may begin a story like: *Once upon a time, in a village far, far away from here there lived a king and queen who were the most funny of rulers. They used to play water games with all sorts of gadgets and trinkets, and they used so much water in the playing of their games that they used all the water in the rivers and wells...So one day they called upon (student's water hero)*

to find a solution and solve the problem... The students finish the story from this point.) After the students write their stories ask them share their stories with the class. They may compare water heroes and group them together as hero friends and sidekicks.

This may also be done with a short film relating to water (having water visibly represented at some point). The students will watch the film in silence without any volume or words, so they are watching a silent film. Using the above story as an example, the students will watch the film and create a dialogue to go with the actions in the film. What are the characters doing? What are they saying? Are they trying to get something? How are they trying to accomplish what they want?

Reflection wrap-up

Debrief in the following lesson by allowing the students to share their stories with the class and discuss the "water heroes" and the stories written by the students. Why did you choose to write that story? Where did you get the idea from? Does your hero have any friends? Would anyone like to read us their story? Who are the characters in your story? What are they doing? How is water an important element of this story?

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST MATH LESSON

Introduction: Water shortage is a serious community issue, whether that community is our local town or the global community. But how does the global community affect our local water supplies, and what can we do to conserve water? Water issues affect animals, plants, and humans. Our fresh water supply is quickly dwindling due to the excessive use of water in our homes or in the cities, whether for watering the lawn, washing the car, showering, or even public art. Corporations are even making water their own! What can we do to keep the water we have and make it last longer? This lesson attempts to teach basic math skills and enforce the importance of water conservation by performing a simple daily task, brushing one's teeth. The children will compare how much water is wasted to how much water can be conserved through measuring amounts and timing water as it runs freely from a 'faucet.' The class will then discuss what kinds of behaviours associated with water use they may change in the future based on their findings in class.

Level: Elementary School

Supporting Documentation/Materials: 5 buckets that have measuring scales on the side of the bucket (large enough to hold 4 quarts of liquid), funnels, 20 clean empty 1 liter containers/bottles (Recycle containers from home); new toothbrushes (1 for each student); toothpaste, timers, poster paper

http://www.eduref.org/Virtual/Lessons/Mathematics/Process_Skills/MPS0016.html

http://www.panda.org/news_facts/education/own_goals/wasting_water/index.cfm

Objectives:

Students will do the following by the end of the lesson:

- *Measure* different amounts of water
- *Compare* time differences
- *Analyze* and draw conclusion from experiments

Procedures Followed

Warm-up Activity

Water waster's charades: Divide the class up into groups of 3-4. Then give each group a different way of wasting water: *tooth brushing, showering, watering the lawn,*

washing the dishes, sculpture water fountains, and washing cars. Give the students about 5 minutes to plan how the entire group will partake in the charade. The students will perform the charade and let the other groups guess what water wasting idea each group is acting out. After all the groups have performed ask the students what kinds of behaviors they noticed that led to wasting water. Write on the board.

Activity 1

Stop wasting that water: Divide the class into groups of 3 and go outside. Explain that each group member will have a role: 1 student brushes his/her teeth; one student to mark down the time the water runs, and another student to measure the amount of water used for the tooth brushing. Each group will get a bowl, 4 1-liter bottles, 1 toothbrush, toothpaste, and timer. Each group will also have to bring a pen and pencil to record times and measurements. Distribute measurement handout to students before they run the experiment. Fill up the liter bottles with water before class and have the students time the water as they pour the water from the bottles into the bucket. Explain they will have to pour the liquid from the bottle at medium speed. Demonstrate if necessary. Students will have to record the amount of time it took to pour water into the bucket. Then record the information into the WATER WASTERS/TIME section of the chart. Then explain that nearly 4 liters of water is wasted when people brush their teeth (if they don't turn off the faucet as they brush). Instruct the students to drain the water from the bucket back into the bottles for the next activity.

Activity 2

Nice job conserving water! Now the students will have to brush their teeth. One student will brush his/her teeth, another student will be pouring the water over the toothbrush and the third student will time the person pouring the water over the toothbrush into the bucket. After the student finishes brushing his/her teeth, the group will measure the amount of water used and write the time (TIME section of the worksheet) and the amount (HOW MUCH SECTION) of the chart. Then have the students answer the questions at the bottom of the chart and discuss the answers. Ask the students to make comparisons between pour times and amounts. Facilitate opportunities for the students to vocalize their inferences based on their perception of the experiment.

Reflection wrap-up

On the board have the students multiply the following equations according to their charts. Divide the class in two groups.

Group 1: Multiply 4 liters of water for tooth brushing by 6 people (a family).
= 24L

Group 2: Multiply 4 liters of water for 65 people (a small village). = 260L

- How much more water is wasted by small village?
- What does this mean for small cities? And large cities?
- What kinds of actions can students take in their daily lives to conserve water? At home? At school? Out in public?

** After the lesson is finished have the children take the water outside and water the plants around the school to recycle and conserve the water!

Instructor's reflection:

What worked

What didn't

Suggestions for next time

STUDENT HANDOUT

Group members: _____, _____, _____

	Total time water was left on	How much water was used
Water waster		4 liters!
Water saver		

1. How much more water did the water waster use in comparison to the water saver?
2. How much more time was the water left on for the water waster?

THE YOUNG ECOLOGIST SOCIAL SCIENCES LESSON

Introduction: The previous lessons have illustrated the interconnectedness of today's world. From vacations abroad to pen pals, host families and international exchange programs peoples of different cultures are learning more and more about each other's customs, habits and ways of life. Yet it is obvious that societies need more than mere exposure to other cultures to create lasting peace. Exposure may be a necessary first step, but tolerance, respect and dialogue must grow out of that exposure. The presence of peaceful behaviours and conflict resolving organizations is needed to realize the peace process, and it is important to understand that peace is a process and the consequence of individuals and groups committed to making peace by personal actions and cooperative efforts.

Level: Elementary School

Supporting Documentation/Materials: *We have embraced the moral imagination and courage necessary to create a 21st century culture of peace and to develop national and supranational institutions which ultimately must be the guarantors of peace and justice in this world (The Hague Agenda, Preamble).*

Objectives:

Students will do the following by the end of the lesson:

- *Consider* our human need for water
- *Promote* care for the community of life with understanding, compassion and love
- *Reflect* on universal responsibility and individual responsibility within the commons

Procedures Followed

Warm-up Activity

Mapping your community and water: With a large sheet of poster paper have students individually draw a representation of their community, including homes, stores, shops, schools, and water sources, i.e. rivers, streams, lakes, reservoirs. What is at the center of your town? Where does your water come from? Students should share their drawings with the class and describe where their water comes from.

Activity 1

In the class, discuss the following questions at length.

- How much water do you use a day?
- Where do you get that water from?
- How do you get it?
- Who usually gets it in your family?
- Where is the water located in your town?
- Do you always have water?
- Who controls your water?
- How does the weather affect your water?
- What do we do with our water?
- Do we need water?
- How many times a day do we drink/use water?
- What do we do if our water is not clean?
- What do we do if we don't have water?
- What other animals/life depend on water?
- Is it possible for everyone to get water?

Facilitation of discussion: write the collective ideas of the class from the questions above on a board. This allows the students to see how each of them thinks differently about water and introduces them to new concepts.

Activity 2

In groups have students draw 2 pictures on paper: a representation of a community with an abundance of water and a community without water. After the representations are complete have the groups present their pictures to the class. Elicit a discussion.

Reflection wrap-up

How are the pictures (questions for wrap-up of the activity above) different? Which picture(s) do we prefer? What can we do to make our preferred picture(s) come true? Do our communities already look like this? Who should help our community reflect this?

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST SCIENCE LESSON

Introduction: Water pollution is a problem that affects all plants and animals whether it occurs in oceans, shorelines, lakes and/or rivers. All living beings and plants are dependant on watersheds to provide consumable water, habitats, and food in order to provide support for various food chains. With so little fresh water available to various species, it is necessary to take environmental measures to conserve and protect our consumable water. India has had multiple issues with water pollution from human waste both organic and inorganic, factories, and natural waste from the land itself. The Ganges River has endured years of pollution and now is considered extremely polluted, nearly unable to recover. Some animals are near extinction while humans who use the river regularly suffer from cholera, e-coli, dysentery and other health concerns. Today they will be learning about the impact of pollution on fresh water ecosystems. This lesson plan will need 2-3 classes devoted to it in order to allot the students enough time to do the necessary research for reporting back to the class.

Level: Middle School/High School

Materials: Research materials about water ecosystems and pollution issues; multiple computers with internet access; chalk board and markers

Key vocabulary:

- *Ecosystem*- complex set of relationships among the plants, animals, habitats (animal homes), micro-organisms, soil and people
- *Biome*- biome is a very specialized ecosystem that only exists in a certain area or climate. They are identified by factors like temperature, rainfall, soil type and altitude

Objective:

Students will do the following by the end of the lesson:

- *Define* vocabulary associated with global degradation through water pollution.
- *Research, synthesize, and report* information about water pollution, chemical contamination, pesticides, and/or human waste from online resources or library materials.
- *Question* current practices and management which lead to water pollution.
- *Generate* ideas to build more community and/or global awareness about water pollution.

Procedures Followed

Warm-up activity

Ask students to list some ways that humans contribute to polluting water ecosystems in their community and how it affects the global community. Make sure to include the following vocabulary: PCBs, DDT, Hydrogen Chloride, sewer sludge, human waste both organic and inorganic, thermal effluents (waste from factories, nuclear power stations, or industrial plants), radioactive waste and wetland destruction. List their ideas on the chalkboard/whiteboard.

Activity 1 (This activity will take 2-3 classes to complete)

Divide the students into group of 3-4 students. Give each group one of the concepts elicited from the above activities. Thinking about the different biomes and ecosystems previously and the concerns listed from the activity above, each group will need to research some of India's current issues with water management and pollution. Each group will have to provide the following information to the class.

- a. Describe the impact of the target concern on the local water environment.
- b. List the current method or methods of remedy to combat water pollution. Provide 2 positives aspects and 2 negative aspects of the proposed remedy
- c. What other suggestions or ideas can be used to better local water quality.

Allow each of the groups to share their findings with the class. Construct a chart with the target concerns, having: concerns, positives/negatives of proposed remedy, and student suggestions.

Reflection wrap-up

Facilitate a class discussion regarding the positive and negative aspects of current water topics in relation to pollution and management issues. Use the following questions as prompts to stimulate conversation. What is the relationship between population growth, technology advancement, and waste dumping in freshwater ecosystems? How does pollution impact food chains as well as local and global sustainability in the future? What types of action can you do in your daily life to help minimize your impact on the environment? What can communities do to lessen the impact of pollution? What can corporations and governments do this alleviate the problems?

SUPPORTIING CHART

Biomes	<i>Animals/ insects</i>	<i>Plants</i>	<i>Landscape & climate Characteristics</i>	<i>List some of the known ecosystems</i>	<i>Issues or concerns with conserving the a specific biome</i>
<i>Grasslands</i>	Monarch butterflies; bison; deer; antelope; African elephant; giraffe; prairie dog; hyena; lion	Blazingstar; sweet coneflower; purple coneflower; aster plant; milkweed; stinging nettle; poison ivy; box elder tree; bluestem grass	Tall grasses and flowers. Maintained by fires and grazing animals.	Ex- American Prairies; African savannas	Wildfires; vegetable farming farming; and animal farming.
<i>Rainforest</i>	Tropical- cougars; pumas; snakes; plethora of birds; monkeys; poisonous frogs; insects Temperate- Elk; raccoons; cougars; black bears;	Tropical- hundreds of known flowers, shrubs, bushes, and trees. Temperate- ferns; lichens; mosses, wildflowers and conifer trees. *epiphytes (plants that grow on other plants)	Tropical- hot, steamy, rainy, very green, lush with vegetation. Trees only live from 50-100yrs Temperate- cool, rainy; moist; trees can live from 50- 1000yrs.	Tropical (near the equator) and temperate (pacific northwest)	Deforestation; many of the animals and plants are going extint due to commercial logging and large scale farming such as coffee and bananas.

<i>Tundra</i>	Gyrfalcon; snowy owl; arctic fox; caribou; polar bear; tundra swan	Small shrubs; lichen; small plants with red leaves to absorb light; cushion plants; cotton grass.	Snowy in the winter months and cool in the summer months; north pole-dark in the winter months and light in the summer months; Permafrost present here.	Arctic tundra; alpine tundras	Global warming is causing the permafrost layer to thaw allowing for more vegetative growth at higher longitudes. Glaciers are also commonly found in this area of the world and are now starting to melt.
<i>Temperate/deciduous Forests</i>	Black Bear	Oak; Maple; Birch; Dogwood; Sumac	4 seasons present (winter, spring, summer and fall); Tree leaves change colours in the fall.	United States, Japan, Canada, Russia, Europe	Deforestation; drought.
<i>Taiga</i>	Wolf; lynx; moose; snowshoe rabbit; red-throated loon	Evergreen trees (conifers) and aspens, birch	Largest biome; trees grow thick bark which serves as protection from wildfires. Slow decomposition. Thin soil. Cold winters, sometimes hot summers.	Canadian Rockies	Prone to wildfires and deforestation.
<i>Desert</i>	Dingo; coyote; gila monster; great mouse-tailed bat; side-winder (rattle snake)	Cacti: Saguaro; Barrel; Old Man; Prickly Pear. Desert spoon; dragon tree; aloe; yucca; desert	HOT summers; warm winters; little precipitation but flash flooding; 2 types- hot and cold deserts.	Arabian; Australian; Chihuahuan; Kalahari; Mojave; Sahara; Sonoran; Iranian; Turkestan	Water management. People are moving to deserts when there is little water in the desert.

ECOSYSTEMS	<i>Types</i>	<i>Characteristics, animals, plants</i>	<i>Locations</i>	<i>Issues & concerns</i>
<i>Fresh water ecosystems</i>	<ul style="list-style-type: none"> - Rivers and streams - Ponds and lakes - Wetlands 	Turtles, anacondas, salmon, beavers, trout, piranhas, herons, alligator, crocodile, frogs . Horsetails, orchids, monkey plants, sedges, algae, moss. Fresh water dolphins, watersheds	Great Lakes (USA) Congo, Amazon, Ganges, Nile, Crooked Tree Wildlife Wetland (Belize)	Pollution from human waste and chemicals. Property development
<i>Salt water ecosystem</i>	<ul style="list-style-type: none"> - Shorelines - Temperate Oceans - Tropical Oceans 	Coral reefs, green sea turtles, sharks, tuna, clown fish, Skate, Atlantic salmon, whales, mollusks	Great Barrier Reef; Atlantic and Pacific Ocean.	Over fishing using chemicals and dynamite; Humane pollution

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST ENGLISH LESSON

Introduction: How are we reliant on water? Where does our water come from? Is there enough for everyone? How does population affect water accessibility? What can we do to conserve water and share? In this lesson students will examine how population affects various earthly resources, namely water. Students will learn why water conservation is important to India's future, as well as explore various water conservation techniques.

Level: Middle School

Supporting Documentation/Materials: Index cards, Map of India

http://www.rainwaterharvesting.org/Crisis/Crisis_home.htm

<http://www.askasia.org/teachers/maps/map.php?no=48>

<http://www.indiablogwatch.com/entry/top-100-most-populated-cities-of-world/>

<http://m-w.com/dictionary/conservation>

Objectives:

Students will do the following by the end of the lesson:

- *Define* the following terms in relation to water: population, crisis, pollution, and conservation.
- *Discuss* terms related to water: population, crisis, pollution, and conservation.
- *Recall* several water conservation techniques.
- *Apply* water conservation techniques
- *Promote* empathy, compassion and love

Procedures Followed

Warm-up Activity

Each student is given an index card. The student is asked to write his/ her name on one side and the number of persons living in his/her home on the other side (including themselves), so if John lives alone with his mother then he will write *John* on one side and 2 on the opposite side. Students will hand the completed cards to the teacher.

After the students complete their *population* card, the teacher will begin by asking the students what the word *population* means. The teacher will explain that population is the amount of people that inhabit a specified area or territory.

The teacher will then randomly select the student's *population* cards and

allow the class to guess the *population* of that student's home. Students are then asked the following questions in sequence:

What is the population of this classroom?

What is the population of this school?

What is the population of the city?

What is the population of the country?

The student's answers/guesses are recorded on the board. The teacher may then use a transparency or flashcard with the answers to each question, revealing each answer individually for dramatic effect.

Activity 1

The students are asked the following question: Where do they get water from? Responses will vary from the kitchen sink to local ponds and large oceans. The teacher will show the students a map of India and locate a large city with a marker. The teacher will ask the students, "Where does this city get its water from?"

The student's answers will be written along with the population of that particular city on the board. The teacher will do this routine for the following cities: Mumbai, Calcutta, Delhi, Hyderabad, Chennai, Bangalore, Ahmadabad, and Pune.

Once all of the cities have been located on the map the teacher will explain they are the most heavily populated cities in India. The teacher will then add the various populations together. While showing the sum, the teacher will ask the students the following questions: Is there enough water for the people in just those 8 cities? How many cities are not shown? How many people do you think live in India? (Answer: 17.2% of the world's population.) Is



their enough water for everyone in India? Do most people live in cities or rural areas? What is the effect of so many people living in such a small area? What will be the long-term effects of urbanization?

Activity 2

The teacher will write the word *conservation* on the board and ask if anyone knows what the word means. The teacher will write down a simple definition—"the planned management of a natural resource to prevent destruction or neglect." The teacher will spend a few minutes further explaining and answering questions related to that definition.

Next, the teacher will explain to the students that there are many things that we can all do to conserve water. The teacher will ask the students, "Do you brush your teeth with the water running?" The teacher will explain that turning off the water while brushing your teeth can save approximately 3-4 gallons of water per day. The teacher will ask the students to look at the *population* card that they made earlier and ask the students to calculate how much water their household could save daily if everyone in the house turned off the water when they brushed their teeth (3 gallons multiplied by the amount of people living in the home).

Reflection wrap-up

The teacher will ask the children to brainstorm different ways to conserve water. The teacher will list several ideas on the board. Students may also be asked to make posters for water conservation that will be displayed at the school libraries and other school spaces.

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST MATH LESSON

Introduction: Water contamination is on the rise in many countries. Although wealthy countries have the most drinkable water available, the people in less wealthy countries are using polluted water for drinking and bathing thus causing many different health issues. India alone has some of the most polluted water in the world. From agriculture to industrial waste to human waste (primarily sewage), the rivers of India are quickly becoming more toxic to the people that use them for religious reasons, drinking of water and bathing. The purpose of this lesson is to create more critical thinking through graph analysis about water.

Level: Middle School

Supporting Documentation/Materials: small index cards, markers or pencils, graph paper

<http://nces.ed.gov/nceskids/createagraph/default.aspx>

<http://planningcommission.nic.in/reports/genrep/wtrsani.pdf>

Objectives:

Students will do the following by the end of the lesson:

- *Demonstrate* graph knowledge through creation of water charts
- *Compare and contrast* different statistical information
- *Draw* conclusions based on provided information
- *Formulate* resolutions based on current data
- *Promote* care for the community of life with understanding, compassion and love
- *Reflect* on universal responsibility and individual responsibility within the commons

Procedures Followed

Warm-up Activity

Dependant on the number of students in the class, divide the class evenly and give them one of the different pollutants: Fertilizers & Insecticides, Industrial waste (chemicals), Human organic waste (sewage), and Human non-organic waste (trash). Ask them to discuss, based on their own knowledge and experience of the pollutants, how these pollutants affect rivers, surrounding people, animals,

and plants. Have a class discussion after the groups finish talking about their ideas.

Activity 1

In the same groups from the warm-up, students will be asked to create graphs (pie charts and bar graphs) of different pollutants. Each group will receive a card that list their pollutant and statistical data concerning the fictional river Gongfish. Distribute the graph paper and markers to the students. Explain to the groups that they will be responsible for creating a bar graph (to show the progress of the river’s pollution over the past 20 years), and a pie chart to show what percentage of the pollution of the river is caused by their specific pollutant. For example, Group 1 may be asked to make a pie chart for ‘fertilizers and insecticides.’ Their pie chart should show that 17% of the pollutants are caused by fertilizers, meaning that less than a quarter of the pollution in the river Gongfish is caused by fertilizers and insecticides.

Gongfish River data set for 1985 and 2005 (fictional data)

	1985	2005
Fertilizers and Insecticides (gp 1)	17%	16%
Industrial waste (chemicals-arsenic) (gp 2)	31%	23%
Human organic waste (sewage) (gp 3)	37%	43%
Human non-organic waste (trash) (gp 4)	15%	17%

Activity 2

After the students have created the graphs in their groups, each group will have to compare and contrast the information in groups by making inferences and drawing conclusions. The students will need to consider how their own personal concerns listed in the warm-up activity are connected to the research data for Gongfish River. Have the students answer the following questions about their pollutant in their groups: What are some factors that lead to the rate of pollution dropping? What are some factors that lead to the rate of pollution increasing? After each group is finished with their work they have to present their graphs to the class along with their conclusions from the information, graphs and discussion.

Reflection wrap-up

Ask the students: How do all these factors contribute to the overall health of river basins? With so many different pollutants present in the water supply, what does this mean for water safe for human consumption? What does this mean for other living organisms in this particular river basin? How is the information in this activity similar to real-life situations? Meaning what types of water pollution are present in their community. What kinds of measures can be taken to resolve water pollution in a community?

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST SOCIAL SCIENCES LESSON

Introduction: Rain comes to India very quickly and pours heavily, but just as quickly as it comes it also dissipates. When the rain stops draughts come, groundwater dries up, rivers lower, and communities and homes are left without water. To help alleviate this problem, a recent invention for saving water and protecting endangered communities is being used called rainwater harvesting. This lesson illustrates in a simple and easy-to-grasp manner for middle school students the concepts and method behind rainwater harvesting. This technique is presented as one potential solution to droughts and drying wells. This lessons sequence of activities emphasizes interconnection and interdependence.

Level: Middle School

Supporting Documentation/Materials: Model landscape (with an incline), Water, Flower-bucket, cup

Objectives:

Students will do the following by the end of the lesson:

- *Promote* care for the community of life with understanding, compassion and love
- *Reflect* on universal responsibility and individual responsibility within the commons

Procedures Followed

Warm-up Activity

The Crazy River: Have students get into groups of 5-8, and line up like a river with one student at the front and another at the back. The students should hold onto to each other's shoulders or waist. Then instruct that all of the students will have their eyes closed during the activity except for the last person, the student at the back of the river. With their eyes closed they are asked to slowly walk around the room. They cannot speak with words, so in order to accomplish the task they will need to create a system to communicate without words. To debrief ask students: How did you communicate? What was it like to be a follower, and to be the leader? Who had control?

Activity 1

Interconnectivity: With a model landscape and a bottle of water, illustrate with students how the water source in one town connects to citizens in another town.

Pour the water in the circular basin representing a lake and watch as the water flows through the tributaries to nearby villages. Discuss this connection. Then, to emphasize water conflicts, illustrate what happens when the waterways are dammed, the lake dried, or waste is dumped into the rivers.

Activity 2

Present a simulation of rainwater harvesting as one possible answer to droughts. To do this you need to have a small cup placed on the landscape, preferably near a model home, and pour water from a flower-bucket (or a cup with holes) to simulate rainfall. As the rain falls the water that is caught by the cup will remain and the water flowing into the river will flow down and away from the home. This illustrates the effectiveness of rainwater harvesting. Then have students brainstorm various problems that may arise via dams and droughts, and propose ways to mitigate the dilemma of losing valuable water. The students can discuss this in groups of 3-5 and then present their ideas to the remainder of the class via a demonstration with the model landscape.

Reflection wrap-up

Rainwater harvesting was invented as a solution to a water problem. Usually it is practiced by communities in a spirit of cooperation and mutual needs. When we discuss water issues often these issues are negative and conflicting. Here however we're talking of a cooperative process of solving problems together as a community. What good do you see coming out of this? Do you know a family or community that uses this idea? How could you make the invention better? What does this method need in order to be successful, to catch and provide people with water? Who is involved in making it a success?

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST SOCIAL SCIENCES LESSON

Introduction: Are we responsible for the health and wellbeing of others? Is money and material compensation the measure of success? This lesson explores the connection between language, gender, and power. Through a simulation on access to resources and privileges students will role-play their positions to cooperate or compete with others for money. A discussion will follow the simulation.

Level: Middle School/High School

Supporting Documentation/Materials: Currency, water

Objectives:

Students will do the following by the end of the lesson:

- *Promote* empathy, compassion and love
- *Build* democratic societies that are just and participatory
- *Conscientize* the young about the importance of water and all the values associated with it
- *Discuss* the role of gender in the water conflicts
- *Reflect* on personal responsibility toward others and care of the commons

Procedures Followed

Activity

Introduce the role-play.

Stages of role-play:

Step 1: Divide the class into groups of students representing the following Indian regions:

1. East and North-east India
2. North India
3. South India
4. West India

Put the majority of male students automatically in the water abundant regions. Put all female students in groups at random (i.e. alphabetically, flipping a coin) for discussion on gender, health, and water.

Step 2: Have each group elect a leader. This is important for later discussions of decision-making. The leader of each group receives immunity from "death."

Step 3: Allot each group a portion of currency according to its current access and control of water resources. Thus the wealthier and more water-rich regions will obtain more currency.

Step 4: Each group will purchase water with the currency allotted each region. Preference should be given to the leading regions by giving them the first choice enabling them to choose the best goods. This will cause the students to realize that some violations of human rights and gender inequalities are structured and institutionalized, not necessarily a tribute to the best and most deserving people.

Step 5: Groups should distribute goods to each member of the group. If there is not enough water for each member, the members without water exit the simulation, "die." After the initial "deaths" due to poverty and the lack of water, other regions can elect to help by offering their excess water. The leaders discuss with their group members on whether or not they would like to offer water to other groups. If so, the leader consults with other group leaders to finalize the transaction of goods. The simulation ends when everyone has received water or has died as a consequence of not receiving water. (As the instructor ensure that when the game begins there is not enough water for everyone, in order to foster critical thinking and problem-solving, and you may also wish to include different degrees of water: safe water, contaminated water, dirty water, etc.

Step 6: Discussion

Post-simulation topics to discuss (could also be distributed as a worksheet):

- I. Gender discrimination in power roles (leading nations). Why were the men automatically given the role of leading regions thereby receiving the power and wealth? Why were men elected as the leaders of the groups? (If this discussion point is too controversial focus on the global conditions rather than local.)
- II. How do institutions harbor gender discrimination?
- III. Is there preferential treatment of men in terms of access to water? Who does the work collecting the water and who benefits from it?
- IV. Certain regions have an enormous amount of wealth yet other regions have very little. Is this structural inequality or fairness due to capitalism?
- V. How does the Human Rights violation of gender equality lead toward further community/national insecurity?

VI. Who 'died' first?

VII. What did the groups choose to do with the water? Did they share, if they had the ability to do so?

VIII. How did the groups problem-solve?

Pedagogy of Change:

After discussing the negative aspects of the simulation, enable students to creatively problem solve through the *pedagogy of empowerment* thereby working actively to change the process of the simulation for the next class period. Outline the *pedagogy of empowerment and engagement* for the students and challenge them to think and prepare for the next meeting:

- (a) Students should *envision* a preferred future
- (b) Students should *design* the values and description of their preferred future
- (c) Students *simulate* their preferred future
- (d) Students *strategize and practice* the preferred future

Step 7: Repeat the simulation with the changes suggested by the students. At the end of the simulation start a dialogue about the similarities and differences in each of the simulations and whether the students believe their alterations to the activity made a difference in the outcomes or their feelings during the simulation.

Step 8: Empowerment and engagement:

Making a difference occurs at all levels of society, governments, corporations, and organizations. The motor of change is civil society. The United Nations and NGOs are working steadfastly toward improving gender and human rights relations in its Member States.

Discussion: Describe to students how others are involved and challenge them to become active as well. Encourage students to join and organize clubs in school to make changes, one example being student leadership bodies such as *Student Council*. Also, challenge the students to become involved outside of school: 1.) Watch news programs and keep abreast of issues, 2.) Join organizations for community action such as youth clubs, volunteer programs, or local NGOs.

Even if the students do not become involved immediately they now know the channel exist if they wish to become involved in the future.

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST ENGLISH LESSON

Introduction: We have discussed violence and conflict in our lives and around the world concerning water resources. Violence, in the form of damned access to water, is an affront to our human dignity and a violation of our human rights. Water is the source to life and a fundamental human right. Using international documents concerning rights to water, students will assess what national and national documents say concerning the right to water and assurance of health and livelihoods.

Level/Context: High School

Supporting Documentation/Materials: Constitution of India, UN Declaration on the Right to Development, Earth Charter, and Hague Appeal for Peace

A culture of peace will be achieved when citizens of the world understand global problems; have the skills to resolve conflict constructively; know and live by international standards of human rights, gender and racial equality; appreciate cultural diversity; and respect the integrity of the Earth. –Global Campaign for Peace Education

We urgently need a shared vision of basic values to provide an ethical foundation for the emerging world community. –Earth Charter Preamble

Objectives:

Students will do the following by the end of the lesson:

- *Promote* care for the community of life with understanding, compassion and love
- *Build* democratic societies that are just and participatory
- *Raise* awareness of the multiple perspectives of peace and water conflicts
- *Consider* national constitutional rights and human rights instruments to better understand the role of law in protecting water rights and facilitating justice
- *Grapple* with the notion of diversity and empathy for others

Procedures Followed

Warm-up Activity

Choose a quote about water from a famous source (i.e. Gandhi, Einstein, Varuna, etc.). Write the quote on the board and ask students what this elicits for them. What does it mean? Who said it? Why did he/she say it? How do we feel/relate to it?

Activity 1

Have participants collectively create a Charter that outlines how they believe water conflicts should be handled. The participants will first prepare a rough proposal in groups of 3-4, and then come together to share their proposals (each proposal should have 3-4 principles). Finally, all of the participants will decide which principles are included in the Charter and, if needed, propose additional principles. The Charter should be displayed on the wall(s) of the classroom during the water modules.

Guiding Questions:

- *What principles should guide our interaction in daily life concerning water conflicts?*
- *Can we group/categorize the principles based on similarities?*
- *Are the principles equal in importance?*
- *How do we list the principles? By priority?*
- *What should we do with the principles?*
- *How do they relate to life beyond this class? In schools? In businesses? In NGOs? In governments?*

Activity 2

Mapping violations of International Documents: In groups, look at excerpts from the Constitution of India, UN Declaration on the Right to Development, Earth Charter, and Hague Appeal for Peace, and decide which human rights are violated in discussions of human dignity, violence, rights to water, etc. On paper illustrate the act(s) of violence and the human right(s) being violated. Have students share their thoughts. Following the assessment of international documents, the students may go back to their Charter and make amendments is so chosen.

Reflection wrap-up

Any final thoughts on the opening quotation? What should we do with the Charter we created together? What do the Constitution of India, UN instruments, and other international documents mean to us? What is our next step in exploring water issues together?

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST SOCIAL SCIENCES LESSON

Introduction: Violence—harm and damage to people and their lives that could be avoided or eliminated—is the core problem inhibiting a culture of peace. This culture of peace ensures healthy water for all and compassion for the human family. However, violence exists in our daily lives, it is taught in schools, perpetuated through media outlets, and glorified in military cultures. At times it seems impossible to overcome violence because of a seemingly ubiquitous and intrinsic nature, yet violence is the outcome—the product—of a recent or distant choice and may in fact beget more violence. It is important that people learn to recognize the indicators of violence, avoid violent action and eliminate the roots of violence to create more peaceful cultures. Additionally, violence does not equate to conflict, nor does this imply that violence is inevitable. What does it mean if violence and conflict are separate entities? How can we transform and transcend violence? What types of violence surround water?

Level: High School

Supporting Documentation/Materials: Since war begins in the minds of men, it is in the minds of men that the defenses of peace must be constructed (*UNESCO Constitution*).

Objectives:

Students will do the following by the end of the lesson:

- *Promote* care for the community of life with understanding, compassion and love
- *Build* democratic societies that are just and participatory
- *Raise* awareness of the multiple perspectives of peace and water conflicts
- *Discuss* the role of gender in the water conflicts
- *Grapple* with the notion of diversity and empathy for others
- *Reflect* on multiple perspective of violent and nonviolent action against water injustices

Procedures Followed

Warm-up Activity

Storytelling: Begin with a story by the instructor highlighting an experience of a water conflict in his/her life. This storytelling session will create a space of trust between the students and instructor as the instructor shows a willingness to share personal stories of adversity, and it will emphasize the importance of storytelling as an act of community-building. Using this story as a catalyst,

students will consider water conflicts in their own lives when discussing the headings that follow.

Activity 1

Brainstorming and Discussion: Discuss the multiple forms of water conflicts in our lives under the following headings. Examples include personal, interpersonal, corporate, governmental, and international. These are not merely personal acts but also governmental enforcements as well as corporate-based injustices. Record the responses on the whiteboard, poster paper, etc.

- Water conflicts in our town/community
- Water violence against children
- Water violence against women/men
- Personal over-consumption
- Water conflicts in schools
- Water conflicts in homes
- Water conflicts between groups
- Water conflicts in another country
- Water conflicts between countries
- Water conflicts by corporations

Activity 2

Activity on Nonviolence: Divide the class and draw a line across the center. Have the words "nonviolence" on one side and "violence" on the other side of the room. Students must choose a place on the spectrum between the two words to demonstrate their perspective on how to address water conflicts.

Reflection wrap-up

Is violence legitimate? What types of violence? What are alternatives to violence? What are constructive and nonviolent solutions to the violence perpetuated by corporations and governments denying peoples access to sufficient and healthy water?

Instructor's reflection:

What worked

What didn't

Suggestions for next time

THE YOUNG ECOLOGIST SOCIAL SCIENCES LESSON

Introduction: How do we approach conflict? How should we deal with water conflicts? Decisions are made everyday. The ability to make intelligent, informed and cooperative decisions must be learned and cultivated in schools and other non-formal educational settings. The ability to make just, good choices—especially futures oriented—helps reduce future conflicts. This learned skill may even help resolve current disagreements. Gandhi stated that the "means are after all everything." The content of this lesson is derived from its process, a device to engage students in decision-making and conflict management processes through applicable classroom conflict situations.

Level: High School

Supporting Documentation/Materials: [Young peoples] experience, fresh perspectives and new ideas must be heard, integrated and acted upon at all levels of society. There is ample evidence that young people in conflict situations can find ways to overcome traditional prejudices, to creatively resolve conflicts and to engage in meaningful reconciliation and peacebuilding processes (*The Hague Agenda, Recommendation 35*).

Objectives:

Students will do the following by the end of the lesson:

- *Reflect* on conflict approaches
- *Grapple* with the notion of diversity and empathy for others
- *Propose* alternatives to water conflicts

Procedures Followed

Activity 1

After explaining to the class the purpose of the day (to explore conflict approaches through the telling and reenactment of water stories), have students create groups of 5 and nominate roles within each group to complete the activity. The groups must organize themselves and assign responsibilities. Each group needs a "leader" to organize and track the progress of the group and a "reporter" to read the selected water (conflict) story to the class. At the end of the activity groups will playback the water story they choose from the group work.

1. Each group member shares a story of a conflict in his/her life. The other students listen carefully and actively while they record it on the handout.
2. After each story has been told, the reporter recaps the stories to the group and one is nominated to become a short reenactment.
3. The reporter of each group then reads the nominated story to the class.

Activity 2

The students are now asked to create a theatrical reenactment of the water (conflict) story they chose in their groups.

4. Each group makes a short reenactment of their nominated story. (The presentations should be 5 minutes, using props/costumes, with everyone participating.)
5. Groups perform the reenactments. At the end of each reenactment, every group must ask at least one question relevant to the plot of the performance. Each group must also offer an analysis of the conflict with a possible preventative measure and a vision to transcend the conflict for a positive outcome. Groups may also perform the reenactment a second time with the preferred ending.
6. Finally, the students will reflect on the methods they used to make decisions during the activity, from making groups and nominating roles to successfully creating a reenactment and presenting it. Also they will reflect on the reenactments, how they were influenced by each reenactment and the reenactments that left the strongest impression. Why?

Reflection wrap-up

Have the groups share their conflict approaches with the larger group and facilitate a discussion. Take note of the approaches adopted by the different students. Have students discuss these points: How do you deal with conflict? Do you run from it? Do you ignore it? Do you talk about it? Do you blame the other person(s)? Do you fight about it? Do you resolve it? Discuss a time...

- When you hoped not to have a conflict
- When the conflict was over, you thought of a better way to resolve it
- When you worried about not getting along with someone important to you
- When you felt unclear and did not understand the situation
- When a conflict was resolved

Do you deal with conflict well? How can you deal with conflict better?

Instructor's reflection:

What worked

What didn't

Suggestions for next time

Handout for Decision Making & Conflict Approaches

Leader (Name): _____

Reporter (Name): _____

Stories: Please summarize the water stories shared by each group member.

1

2

3

4

5

Conflict Approaches:

1. How did the members of the group cope with the conflicts? How was the leader, writer and reporter nominated? What method was used (e.g. elected; motion and second; rock, paper, scissor)? What do you think of the methods used to pick roles? Are they efficient? And do they result in the desired outcome?

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