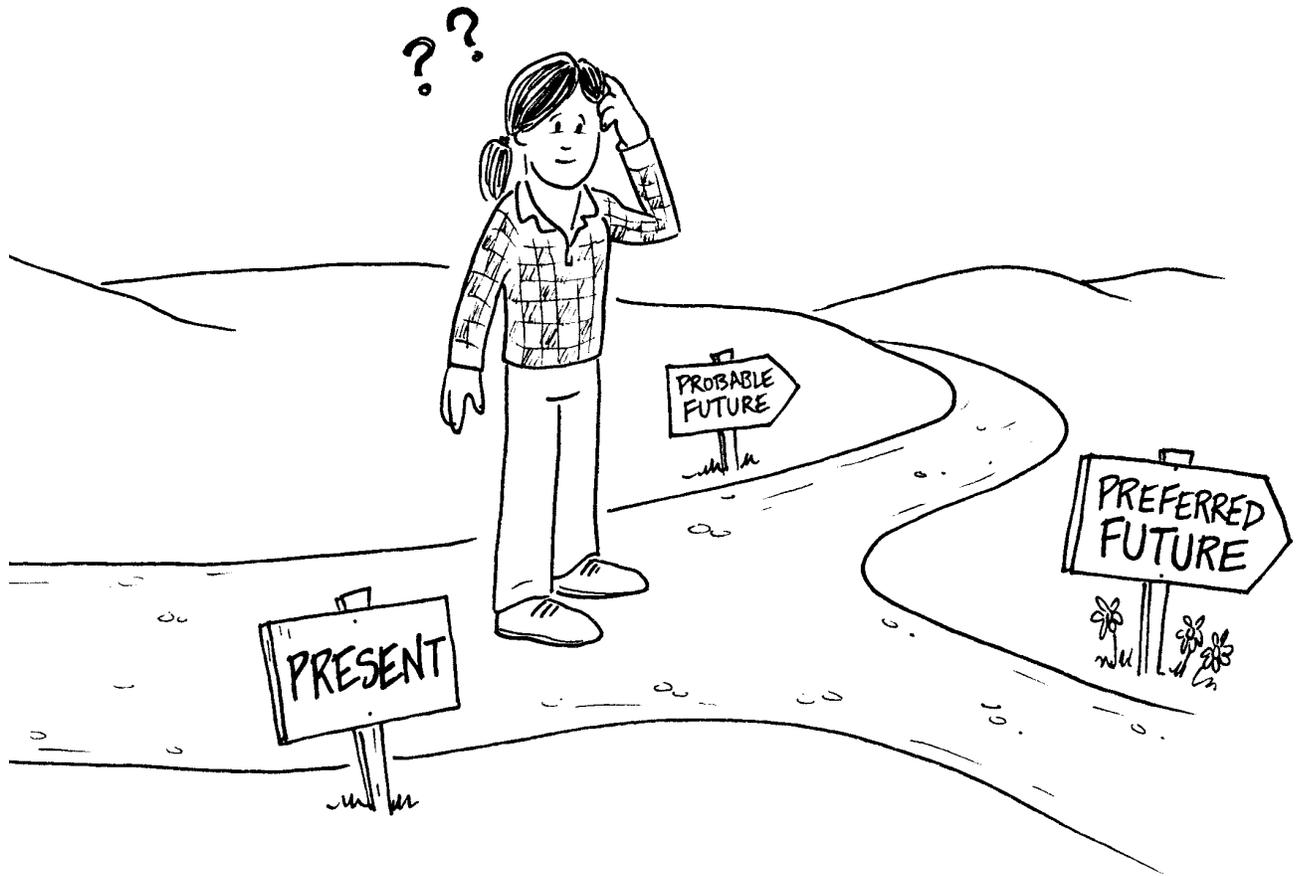


Inventing the Future:



***Activities to help students learn
about future and sustainability
in the Third Millennium***



CANADIAN
PARKS AND
WILDERNESS
SOCIETY

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Please note that all activities from *Inventing the Future* are also on the CPAWS website; visit www.cpawscalgary.org/education . This site also highlights linkages to other relevant Internet resources on this topic.



A note from the CPAWS Education Team

Re: 'Inventing the Future'

Our schools and our society under-emphasizes the future. As we move towards the future most of our reference points, our focus, and our 'instructions' for how to deal with the future are rooted in the past. In a way we are like the driver of a car that is moving quickly towards the future - but with most of our attention focused on the rear-view mirror. In a car, this approach is neither helpful or prudent; similarly, as individuals and as a society we need to spend more time looking forward, making conscious and deliberate decisions *now* that will create the future that we prefer. For young people, thinking about the future can be a highly motivational, inspiring, and empowering activity.

Inventing the Future is a guide to help teachers do this with their students. Unlike other guides available from CPAWS, many of the activities contained herein were originally conceived by Dr. David Selby, a British professor currently teaching at the University of Toronto. His permission to use and adapt these activities is most gratefully acknowledged, as is the support from Suncor Energy and the Calgary Foundation that made the production of this program possible. © 2006 CPAWS Calgary/Banff

Inventing the Future is produced by the Calgary/Banff Chapter of the Canadian Parks and Wilderness Society (CPAWS). CPAWS is Canada's grassroots voice for wilderness, and works to protect our wild ecosystems in parks and other natural areas. CPAWS Calgary/Banff provides other activity guides, teacher inservices, school presentations, classroom presentations and activities, and field trips to teachers and students throughout Alberta; for more information find us on the Internet at <http://www.cpawscalgary.org>.

We can be reached by email at education@cpawscalgary.org. If you prefer more time-honoured technology, our phone number is 1-403-232-6686.

Regards,

CPAWS Education Team



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Futurescapes: Teaching and Learning about the Future

by David Selby

*This article originally appeared in the May 1993 issue of **Connections**, the newsletter of the Global, Environmental, and Outdoor Education Council (GEOEC). The GEOEC is a specialist Council of the Alberta Teachers' Association.*

INTRODUCTION

Charged with the task of educating future generations of adults, schools tend to make little or no investment in helping students consider the future. The future-directed rhetoric of many a school board ('We are equipping students for life in the interdependent, fast-changing world of the twenty-first century') is belied by the 'future blindness' of many a classroom.

The absence of a futures dimension across the school curriculum is, at one and the same time, easy and hard to comprehend. It is easy to understand in that futures thinking is a largely speculative affair lacking the hard facts and right answers valued in so many classrooms. It is hard to understand in that students are so clearly fascinated by, yet concerned about, the future (see *Questions about the Future*, below), and its study is thus highly motivational and allows teachers to capitalize upon the rich opportunities for higher order skills development offered by future-oriented themes. The skills of, for instance, lateral and divergent thinking, problem solving, decision making, extrapolating, imaging, visualising and systems thinking can be effectively developed through futures activities and projects.

Questions About the Future

Following a process of individually writing five questions they would like to ask about the future and negotiating a list of 'top 10' questions first in groups of five or six, then as a whole class, seven-year old students in Taunton, Somerset, England, came up with the following final list:

- Will I still be laughing when I'm 50?
- Will we find out about Pluto?
- Will our friends be the same?
- Will people still use pencils?
- Will they invent irons to run off solar heat?
- How many more animals will be extinct?
- What will our mothers and dads look like?
- Will the jungles be destroyed?
- Will cars still have leaded petrol?
- Will pollution stop divers going under the sea?
- Will there be war soon?

Possible and probable future scenarios can embrace both the **optimistic** and **pessimistic**. Preferred futures are mostly optimistic but may involve 'lesser of two evils' choices amongst those with a pessimistic view of the future. Other useful ways of exploring alternative futures is to consider them from the point of view of **desirability** and **plausibility**.

Futures-oriented education is only in a limited sense about **prediction** of what is going to happen. It is rather about the future as a '**zone of potentiality**', about knowledge of what is possible rather than knowledge of certainties. It is also about helping students recognize that human choices and actions (including their own choices and actions) flow into, and help shape, the future.

Newly prominent concepts within futures thinking are those of **intergenerational justice** and **sustainability**. The former suggests that those alive today have a responsibility to subsequent generations as much as to their own. 'Treat the earth well. It was not given to you by your parents. It was loaned to you by your children'. The concept of **intergenerational rights**, and its implications for our present-day behaviours and decisions, provides a powerful focus for the classroom (see the activity, **Our Inheritance, Their Inheritance**). **Sustainability** likewise asks that we review, and radically readjust, our expectations out of respect for the Earth and so as to ensure a future for humans, non-human lifeforms and the environment.

The future-oriented school provides a springboard for practising being a 'practical visionary'. Having identified their individually and collectively preferred futures, students can be encouraged to take steps to realise those futures through school-based social, political and environmental action projects. This is what Alvin Toffler has called the process of 'anticipatory democracy'.

*David Selby is a Professor in the Faculty of Education, University of Toronto, and is Co-Director of the University's International Institute for Global Education. His books include **EarthKind. A Teachers' Handbook on Humane Education** (Trentham Books), and **Reconnecting: From National to Global Curriculum** (WWF UK) written with Graham Pike. Both books contain futures activities.*

¹ Cited in Hicks, D., 'Preparing for the millennium. Reflections on the need for futures education', **Futures**, July / August 1991, 633.

² Kauffman, D.L., **Futurism and future studies**, National Education Association of the United States, 1976, 11.

³ **Ibid.,.**

Futures Bag

This is a lively, interesting, and sometimes humorous way of introducing students to futures education and having them reflect on the relationship between present and the future.

Time Needed:

20 minutes

Materials:

A bag of objects. Examples: eraser, glue stick, ruler, computer disk, tape, paper clip, post-it, rubber band, ball of wool, exercise book, dice, rubber ducky, pack of cards, children's toy, calculator, whistle, kaleidoscope, etc.

Instructions for the Teacher:

Have students stand in a circle. Have each student pick an object from the bag (have them pick the first object they touch!) and think about it as a metaphor for the future. Then go around the circle and have each student use a couple of sentence to describe the metaphor they came up with. They might begin their sentence with

"This [object] is like the future because..." or

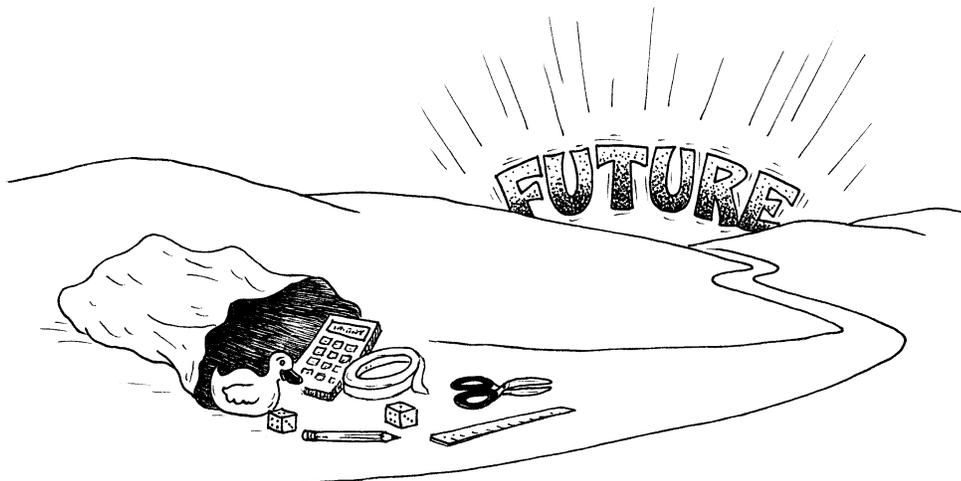
"This [object] is a good symbol for the future because..."

You may wish to have someone record the metaphors on the board.

Discussion:

Ask students:

- Did any metaphors that you heard suggest that the future is pre-determined?
- Did any metaphors that you heard suggest that humans can influence the future?
- Did any metaphors that you heard suggest that the future is a lottery?
- Does the metaphor you chose reflect how you actually feel about the future?



Metaphor Magic

Is the future like a mighty river which tosses us around like a small boat? Or is more like a blank page, and we get to write anything we want on the page? In this activity students explore the power of metaphor, choose the best metaphor for the future, and examine their attitudes and values that led to their choice of metaphor.

Time needed

60 minutes

Materials

The page *Metaphors about the Future* (on either overhead transparency or photocopies)

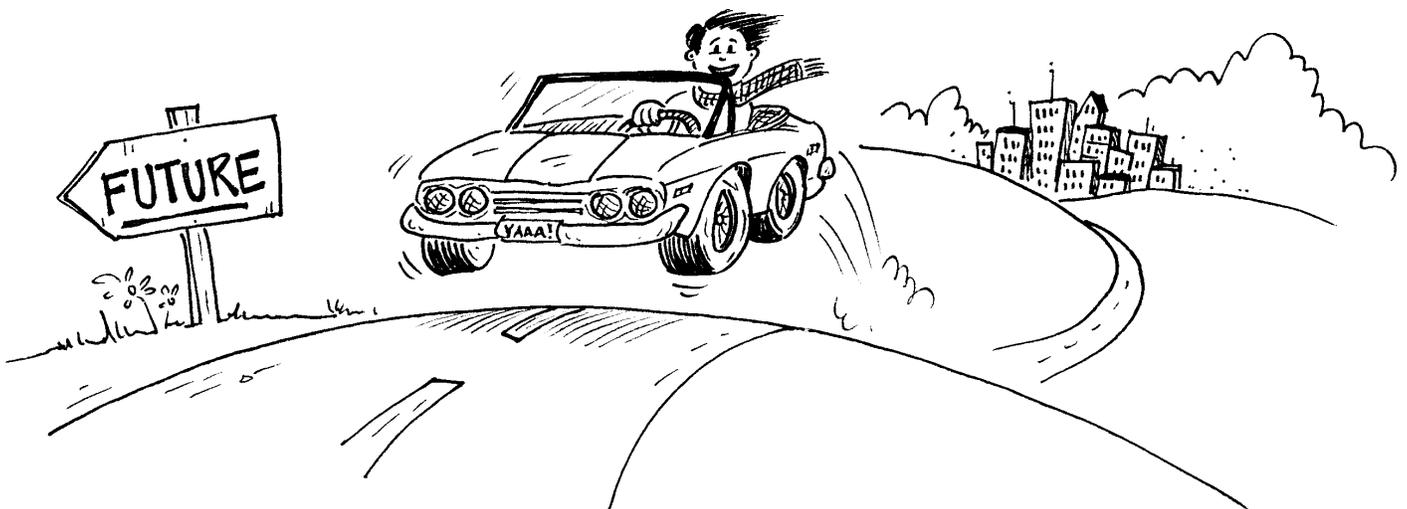
Instructions for the Teacher

Have students read the *Metaphors about the Future* sheet in silence. Ask them to rank them in order, starting with the metaphor that seems to best capture the true nature of the future. Next, ask students to share their rankings with three other students, and ask them to try to pick a metaphor that the whole group feels is a good one. Have one of the students present to the rest of the class, giving an explanation for why they chose the metaphor they did.

Discussion

Ask students:

- **When you were working by yourself at the beginning of this activity, why did you choose the metaphor that you did?**
Have students 'unpack' the values and attitudes that led to their choices.
- **Which of the metaphors is the one you like best? Why do you like this one?**
Students may come to appreciate that the metaphors in which 'something can be done' to create a desired future are more positive and empowering than others.



Definitions:

Metaphor: a figure of speech in which a word denoting one subject or idea is used in place of another to suggest a likeness between them (as in '*The ship ploughs through the sea*').

Simile: a figure of speak in which two unlike things are compared by the use of 'like' or 'as" (as in '*His face is like an open book*').

Analogy: a likeness in one or more ways between two things that are otherwise alike (as in '*The Earth and a personal savings account are analogous in that, in both cases, the activity of withdrawing the capital as well as the interest cannot continue indefinitely*').

Metaphors about the Future

- A. The future is like a great roller coaster on a moonless night. It exists, twisting ahead of us in the dark, but we can only see the track that is just ahead of us. We are locked in our seats, and nothing we may know or do will change the course that is laid out for us.
- B. The future is like a blank sheet of paper. It is there for us all to fill in by our actions and decisions in the present. If we choose the future we want, and consciously and purposefully set about trying to make it happen in our daily lives, it will probably materialize. If we leave it to the powers-that-be to decide upon and plan the future, we will get a certain kind of future - one dominated by the powerful.
- C. The future is like a highway between two great cities. We're heading in a certain direction but we may be able to take an interchange every now and again and ride along parallel or divergent tracks to the same destination. We also have some choices about what to do in our car as we travel.
- D. The future is entirely random, a colossal dice game. A bullet is deflected off a twig and kills one person instead of another. A scientist checks a spoiled culture and throws it away, or examines it more closely and discovers penicillin. Since everything is chance, all we can do is play the game, pray to the gods of fortune, and enjoy what good luck comes our way.
- E. The future is like a great ocean that we can freely travel upon. There are many possible destinations, and many routes to each destination. We can chose whatever future we want, if we work with a purpose for it. There will always be currents, storms and reefs to be dealt with but we can sail our ship to where we want it to go. In short, human actions and decisions shape the future.
- F. The future is a mighty river and we are in a boat on the river. With great force the river rolls steadily on; there are definite banks and a strong current. We have to follow the river, but we can look ahead and avoid the whirlpools and sandbars and pick the best path through the rapids. We have some *limited* control over where we go.

New Years Resolutions

The Story of a Year is a provocative fable designed to make humans' enormous - and recent - impact on the planet more real by comparing it to a year. A positive and hopeful twist is provided by having students make a New Years Resolution for the 'next year' - the future. Helping students to act on one or more of their personal resolutions presents a tremendous opportunity to empower them.

Time Needed:

60 minutes

Materials:

Writing paper or flip chart paper.

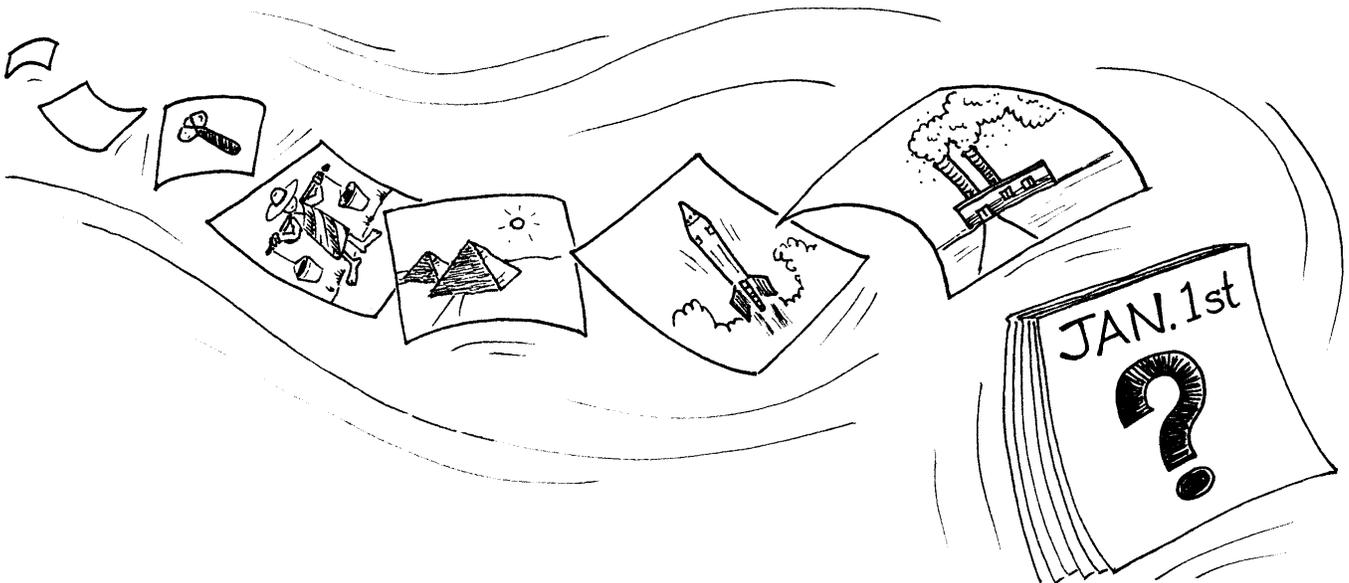
A copy of *A Story of a Year* (on either overhead transparency or photocopies)

Instructions for the Teacher:

Read The Story of a Year aloud to your class. When you are finished, ask students:

- **What did you think of the Story of a Year?**
- **Is this account of human history consistent with what you already knew? Based on the writing, do you think the authors are biased in any way? Do you feel this story accurately reflects what is going on in the world today?**
- **What do you think the next two lines of the story might be?**

Ask students to form pairs to discuss this last question. After five minutes, have them share their sentences with the class. Pairs are then asked to agree on ten New Years Resolutions - five that are personal resolutions (these begin with "I will" and five that are recommended



resolutions for our society or for humanity (these begin with “We will...”). These are recorded, in order of importance, on the writing paper. Pairs then join with two other pairs to form a group of six to share and discuss their lists, and to look for similarities between resolutions. Ask each group of six to try to ‘join together’ some of the ideas contained in their resolutions to create one or two that capture the most common items in resolutions.

Discussion

Ask students:

- **What sort of Resolutions were most common? Why was this?**
- **What is the goal of all the Resolutions that you came up with. List them.**
- **Can you name some groups in our society that are already working towards these goals? List some of them. Is it possible for concerned citizens to become involved in these organizations?**
- **Would groups of students in other countries or from other sectors of society have reacted to *The Story of a Year* this way? Would they have come up with the same sorts of resolutions? What role should the developed countries play in making some of these resolutions come true?**

The resolutions can be discussed in terms of their relevance for our present global condition, whether they are realistic, and whether they should they be followed. Resolutions may pave the way for you to empower your students, helping them take positive action through acting on one or more of their personal resolutions. At some point you might remind students that most resolutions made on New Year’s Eve are broken shortly thereafter - what do we have to do as individuals and as a society to ensure that these Resolutions are not broken?

The Story of a Year

...And then, as the bells chimed the beginning of the new year, the people had the world to themselves. For many months, as far as we know, they were very quiet and there were not very many of them. From the first of January until the end of September, they just wandered around in small groups - hunting animals with spears and arrows, sheltering in caves, dressing themselves in the skins of wild animals. On about the First of October they began to learn about seeds and manure and so forth, and about how to herd and milk animals. By about 23 October some of them were living in fair-sized cities - mainly in Egypt and India and the countries in between.

Moses came and went on about 11 November. Buddha in India, Socrates in Greece, Confucius in China all came and went together (although they didn't know each other) on about December 3. Christ appeared on 8 December, as did (give or take a few hours) the Great Wall of China and Julius Caesar. Mohammed came later, on December 15th.

On about 23 December there began to be cities in northern Europe. On about 27 December and into the next day people went out from these cities and began taking things from the rest of the world. They took things from the Americas, both North and South, they took things from India, and during the last hours of 29 December they took things from Africa. Just before midday on 30 December they had a big war amongst themselves, and then had another big war late in the afternoon. Late that night and into the morning of the last day of the year these people from northern Europe were pushed back out of India and Africa, although not out of North America or Oceania.

Also, as the closing hours of the year fled away the people invented nuclear weapons, landed on the moon, and learned to move genes between different species. During this last day people used up more oil and metal than had been used in the previous hundred and sixty four days put together, which created more pollution of land, water, and air. In the last few seconds of the year the population reached six billion, the rate of species extinction exceeded one hundred per day, wild areas shrunk to a small fraction of their former size, and the exhaust fumes from their machines caused the climate of the Earth to change.

The bells were chiming again. It was the start of a new year. And the people made their New Years Resolutions...

Time Chairs

How will you feel in ten years time? How did the things you did ten years ago help make you who you are today? *Time Chairs* provides an opportunity to understand in an experiential manner the depth of the relationships between past, present, and future.

Time needed:

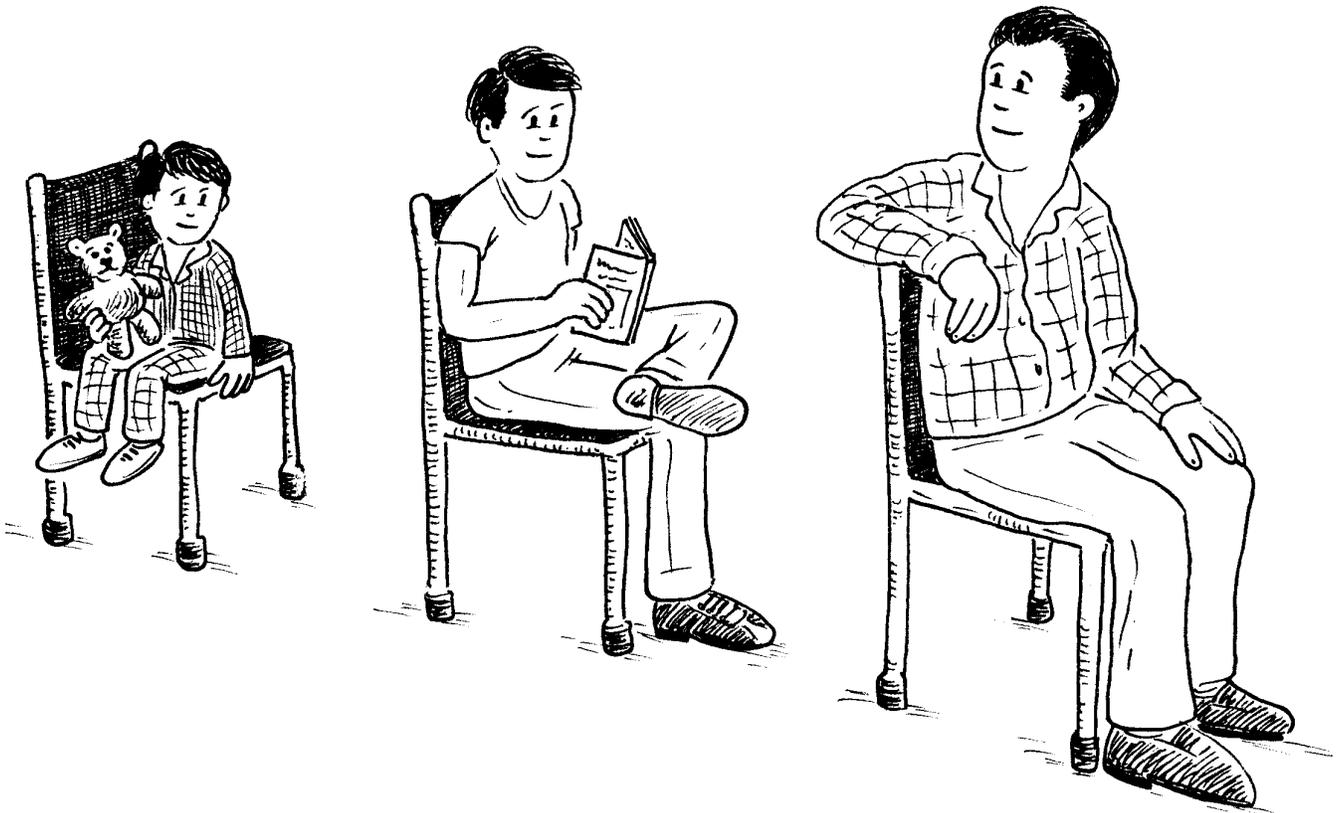
50 minutes

Materials:

An open classroom space; three chairs for each pair of students; a chart or overhead projector transparency of the sets of questions (see samples, next page)

Instructions for the Teacher:

1. The class forms into pairs. Each pair sets up their three chairs in a line facing in the same direction. One partner sits in the centre chair. The standing partner is told that she has the role of interviewer. The seated partner chooses the set of questions upon which she wishes to be interviewed and the interview begins (supplementary questions are permitted). Some five minutes are allowed for interviews to run their course.
2. Seated students are then told that they will next move from the centre (present) chair ten



years back in time to the rear (past) chair. When in their new location, they should try to express how they think they will look, and move. The interviewer is to repeat the interview (same set of questions), both questions and answers being couched in the present tense. Answers are also given in the present tense (but students have to imagine that they are now ten years younger).

3. After five minutes, the interviewee moves past the 'present' chair and ten years into the future (the front chair). As before, they should try to express how they think they will look, and move, in ten years' time. The interview is repeated. Time is given for a short feedback session (so that impressions are secured as part of the collective memory) before the interviewer and interviewee change roles and the entire procedure is repeated. The new interviewee has the right to opt for the set of questions of her choice. When the second round of interviews is concluded, a thorough class debriefing follows.

Discussion

This is an activity in which students are likely to become absorbed in freshly-recalled memories and future imaginings; so much so that it may prove impossible to restrict interviews to five minutes! The debriefing can usefully begin with a sharing of feelings engendered. The sharing can lead directly into discussion of a number of interesting areas:

- **Was it more difficult to be interviewed about past, present or future? Why?**
- **Which set of questions proved most daunting, especially during the 'past' and 'future' interviews? Why?**
- **Did interviewees find it easy or difficult to recall their past attitudes and hopes?**
- **Were you thinking with a global perspective ten years ago?**
- **Were your views of the future optimistic or pessimistic? Do you feel you could affect the future?**
- **What thoughts has the interview experience raised about the speed and effects of change at all levels personal to global?**
- **How did this activity help you understand the interlocking nature of past, present and future?**

Variation:

1. The three chairs can be set facing forward in a triangle. The rear chair represents the present; the two front chairs the probable and preferred future respectively. Seated students are interviewed on their chosen set of questions answering in the present and from the vantage point of their envisaged probable and preferred futures.
2. For younger students, reduce the number of years in the past and future, or indeed to several weeks or months. You may wish to modify the questions as well.
3. A stimulating follow-up activity is to ask students to design sets of questions for other groups.

Questions about Personal Perspectives

1. How old are you?
2. What is your family / home situation?
3. Describe an ordinary day in your life.
4. What is the most important thing you have learned over the last 10 years?
5. What is the most important thing that you hope to learn in the future?
6. What is your greatest personal wish for the future?

Questions about Global Perspectives

1. How old are you?
2. What three things please you about the state of the planet?
3. What three things worry you about the state of the planet?
4. What do you think has been the greatest loss for humans over the last 10 years?
5. What positive changes for humans have you seen over the last 10 years?
6. What is your greatest wish for the planet in the next 10 years?

Our inheritance, Their inheritance

We have not inherited the earth from our parents, we have borrowed it from our children. (Author unknown). This activity is a simple, but effective, way of helping students understand the meaning of this quote and the concept of intergenerational justice. Students are introduced to the idea that what one generation does can in some respects improve, and, in others, lead to a deterioration in, life quality for subsequent generations.

Time needed:

60 minutes

Materials:

Two copies of the **Inheritance** chart and a blank sheet of paper for each group of 3/4 students.

Instructions for the Teacher:

1. To begin, ask students for a few example of how life today has been beneficially and adversely affected by the actions of past generations.
2. Ask groups of three or four students to put today's date on the first **Inheritance** chart, and to make their own lists of the positive and negative inheritance from previous generations. Lists are shared and discussed as a class.
3. In completing the second chart, groups imagine themselves as young people in two generations' time and list ways in which the past few generations have a) enhanced and b) undermined their quality of life. Have them put a date 50 or 60 years in the future on the second **Inheritance** chart.
4. Read students the following quote:

"In many ways our politicians are like weather vanes, showing the direction of the political wind. And our job as concerned citizens is to make the wind blow."

David Brower

Ask students to compose a letter to a current decision-maker, pointing out what is and what is not being done then to ensure that future generations enjoyed equal life benefits and opportunities. Lists are shared and letters read out.

Discussion

A comparison of the two sets of lists can be very instructive. Are we creating a more negative inheritance for future generations than our predecessors left us? Is there a shift of emphasis in the positive and negative aspects of our own inheritance and of the likely inheritance of future generations? What are the main problems we are leaving people in the future? Are they problems that are easily overcome or are they intractable in nature? How should we set about leaving a better inheritance?

date: _____

Our Inheritance

Positive

Negative

--	--

date: _____

Our Inheritance

Positive

Negative

--	--

Futurescapes

This is an activity requiring students to confront a range of perspectives and value positions on animal and environmental issues, and to explore in some detail the social, economic and ethical implications of different future scenarios.

Time needed:

50 minutes

Materials:

A **Futurescapes** chart for each student; a sheet of flip chart paper and marker for each group of six.

Instructions for the Teacher:

1. Working individually, students complete the **Futurescapes** chart, indicating whether each of the future scenarios described is, in their view, **possible** (i.e. a future that **might just** come about), **probable** (i.e. a future that is **likely** to come about) or **impossible** (i.e. a future that could **never happen**); also whether it is **desired** or **not desired** (i.e. a future they would or would not like to happen). A tick should be placed in one of the first three columns; a second tick in one of the last two columns.
2. Students then form into pairs to share, explain and discuss their individual decisions. If as a result of the interchange a pair or individual change their mind about the placing of a tick, this should be indicated by circling the tick with a different coloured marker and drawing an arrow to the column now preferred.
3. Pairs now form into groups of six and repeat the process of sharing, explaining, reviewing and amending their decisions. In addition, they choose one scenario which all group members have identified as a desired future and, using the newsprint provided, brainstorm ideas as to what they could do individually and collectively to help realise that future. (Should there be no commonly desired scenario, the group can break into two to brainstorm ideas around two different scenarios). Have students share their ideas with the group as a whole.

Discussion

The final brainstorming section provides students with an opportunity to consider and evaluate strategies for change. The debriefing can begin by asking one group to report their discussions around a scenario that provoked controversy and disagreement. The issues raised can then be thrown open to the whole class. At appropriate moments, other groups can be asked to share responses to other scenarios as a stimulus to further class discussion. Consideration of action plans is best left until responses to the eight scenarios have been aired.

Variations

Students can write their own scenarios and have their partners comment on these.

Futurescapes worksheet

DURING MY LIFETIME:	POSSIBLE	PROBABLE	IMPOSSIBLE	DESIRED	UNDESIRED
1. There will be laws forbidding blood sports such as deer hunting. Hunting will be looked back upon as a feature of a less civilized age.					
2. By genetic engineering techniques that place genes from one species into another species we will have farm animals, looking quite different to those we now know, which will produce a higher yield of meat for less food intake in a shorter space of time.					
3. Strong laws to protect endangered species will result at times in hotels and private homes being bulldozed to provide endangered animals with habitat.					
4. The cost of oil and gas will be so high and transportation will be so costly that people will mainly eat only vegetables that are grown locally.					
5. The areas surrounding wilderness areas will become so developed that animals will not be able to move between these parks, and park wardens will routinely catch and transfer wild animals between parks so they don't get inbred.					
6. Zoos will enjoy a new lease of life as a means of helping people learn about the natural world, and of conserving endangered species. People will go to see the animals and to watch multimedia presentations on conservation and ecology.					
7. An international agreement will be reached to protect all remaining wilderness areas (the rainforests, Antarctica, the Canadian North, etc.) from exploitation by humans.					
8. For health and environmental reasons vegetarianism becomes so widespread that meat eaters are reduced to a small minority.					

Woolly Thinking

In this powerful activity students are assigned one of several topic areas: global economy, air pollution, etc. They then seek to find connections between their group topic and others' using coloured skeins of wool, creating a spider's web that shows the interconnectedness that exists within and between the natural world and our human society.

Time needed

60 minutes

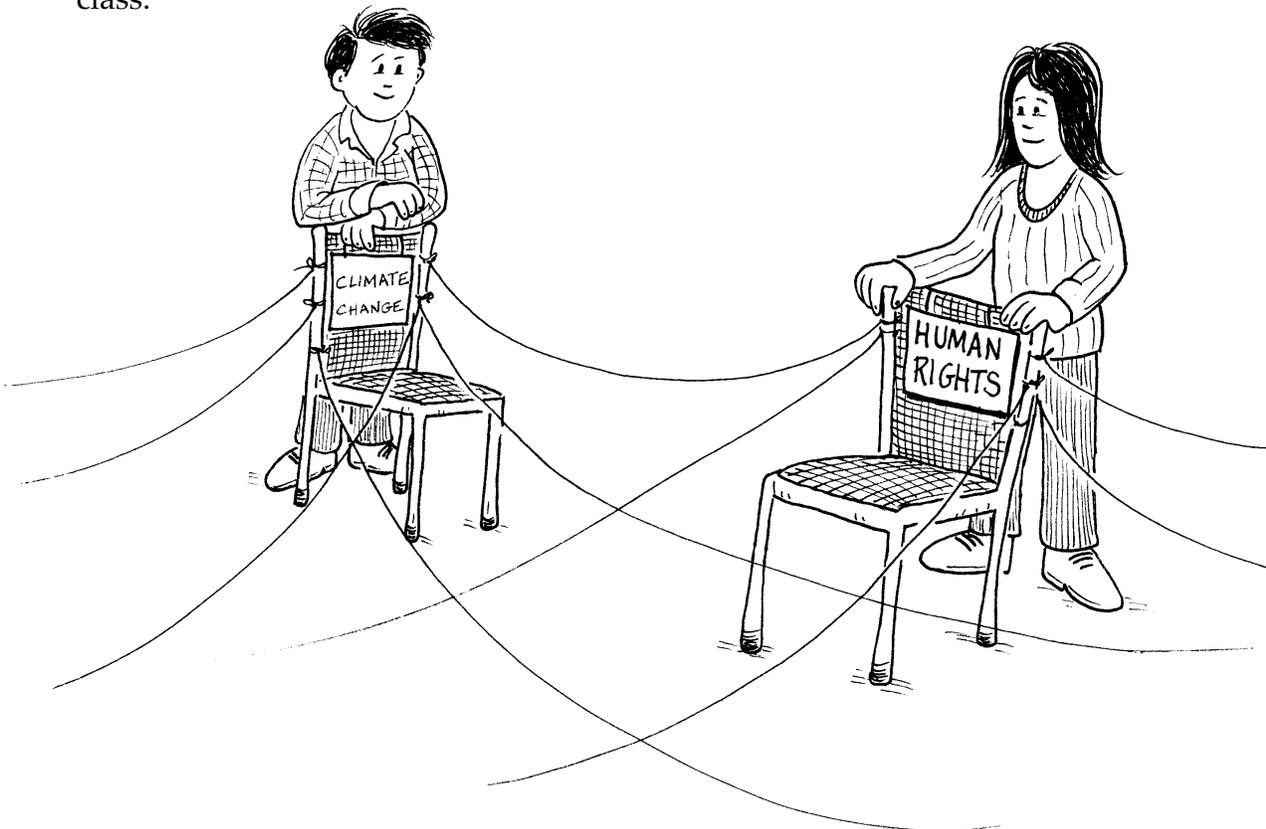
Materials

- nine signs
- nine chairs (can be attached to desks)
- nine balls of different-coloured wool

Note: if the number of signs vary from nine, so will the number of chairs and balls of wool required!

Instructions for the Teacher

1. To begin, use the following pages to create signs that say air pollution, water pollution, biological diversity, climate change, global economy, arms trade, human rights, trade agreements, democracy. Add any additional topics that you have studies with your class.



2. Put the chairs in a circle (as large as possible). Tape signs to the chair, as shown in the diagram. Put a ball of wool on each chair.
3. Divide students into groups of three, and ask them to look at the signs, choose a topic that they'd like to learn more about, and stand beside that chair. Ask them to tie the ball of wool to the arm of the chair.
4. Ask students to examine all the signs, and to consider the signs that say 'biological diversity' and 'climate change.' Ask students if they can describe a way in which biological diversity can be affected by climate change (someone should be able to point out that a rapidly changing climate might make at least some plants and animals become extinct). Ask the students at the biological diversity chair if they agree with this. Then carry the ball of wool from the climate change chair to the biological diversity chair, hook it around the back of the chair, and carry it back to the climate change chair.

Next, ask students if they can describe a way in which **climate change** can be affected by **biological diversity** (this is tougher, but someone might point out that a diverse collection of plants affects the rate of climate change because they all use carbon dioxide, a greenhouse gas). Ask the students at the climate change chair if they agree with this. Then carry the ball of wool from the biological diversity chair to the climate change chair and back, as you did before. This demonstrates that the relationship works both ways.

5. Tell students that, in this activity, their challenge is to establish a connection between their chair, or topic, and all other chairs in the room. To do this one student will remain at the chair, while the other two carry the ball of wool and become a negotiating team who visit other chairs, try to agree on a relationship between their topic and the 'hosts' topic (remind students that their rationale for agreement will be examined by the group!). Once agreement is reached the wool is looped over that chair and then carried back to the 'home chair' before the two set out to establish another connection with another host chair.
6. Answer any questions and let the activity proceed. Within ten or fifteen minutes all chairs should be fully connected to all others. While this is going on, trouble-shoot any problems that arise. You may wish to assist students with some of the less obvious connections.
7. Once the activity is completed, have students stand behind their chairs. Ask the students if they had difficulty making any connections. If any connections are not yet made, use the group wisdom' to brainstorm any possible connections. (And if no-one can think of any, accept this - although this is a rare occurrence!) You may wish to choose one or two connecting links and examine the arguments used to justify these links.

Discussion

8. Ask students to examine the network they have created. Ask students if this complex web is more or less complex than the network of global interdependence in which they currently live (it is much less complex). One of the reasons that the physical web is less complex is that some factors that affect student's lives - and the topics shown on the chairs - are not present. Ask students for an example.

Ask students the following questions:

- **How would your topic area be affected by the Sept. 11 terrorist attack on the USA?**
Changes in budgets might harm environmental protection measures; a decrease in consumer confidence might harm the economy - and perhaps slow harmful environmental activities such as climate change and the loss of biodiversity!

- **How would your topic area be affected by a decrease in the world's biological diversity?**

Biodiversity gives us medicines, helps provides ecosystem services such as clean water and fresh air, lets us breed disease-resistant crops, generates economic activity through ecotourism, promotes the evolutionary process - and has its own more intangible values, such as giving us natural beauty, let alone its the intrinsic rights of species to simply exist.

- **How would your topic area be affected by the Kyoto accord, which asks nations to reduce their emission of greenhouse gases to 199 levels.**

Have students 'follow' this change as it affects first the climate change topic area - and them all other areas of the web. Have students state their opinion as to whether the change is a good thing or a bad thing for their topic area, for people, and for the planet.

- **Are all of the content areas valued equally by our society?**

Indeed they area not - and that, claim environmentalists, is the reason for so many of the planets environmental problems. Matters pertaining to the economy are more highly valued, in general, than issues such as endangered species or even climate change.

Consequently, resistance to change comes form the most powerful sectors in the web that students have created - which is why (using the example of

climate change) the Kyoto accord is in disarray, with all industrialized countries failing to meet their 1990 commitments.



***AIR
POLLUTION***

***WATER
POLLUTION***

***BIOLOGICAL
DIVERSITY***

***CLIMATE
CHANGE***

***GLOBAL
ECONOMY***

***ARMS
TRADE***

***HUMAN
RIGHTS***

***TRADE
AGREEMENTS***

DEMOCRACY

Global Economy

In this activity students will examine their personal belongings and determine to what degree they are a part of a global economy. They will explore the pros and cons experienced by the countries that supply their goods, and think critically about the impact of our consumer choices.

Time Needed

60 - 80 minutes

Materials

- Worksheet provided "Where does your stuff come from?" (handouts and on overhead transparency)
- Coffee Plantation example (overhead transparency)
- World Map (handouts and on overhead transparency)
- Lyrics from Dar Williams song "Play the Greed" (overhead transparency)

Instructions for the Teacher

1. Have students work in teams of two to complete the worksheet.
2. Give each student a copy of the world map. Using where they live as a central point, have them draw lines connecting themselves to each country that is mentioned on their worksheet ("Where does your stuff come from?"). This will give them a visual picture of



the global connection between them and their possessions.

3. Use the world map overhead and a marker and go through the items one at a time with the class, in order to summarize the aggregate results from the whole class (the map should end up with lines from Alberta to every country that any of the students identified).

Pros and Cons

4. Show the students the overhead about Coffee Plantations to help the students get started. Take a few minutes to discuss the pros and cons of sun-grown coffee.
5. Next, ask each group of students to choose an item that was produced in a developing country. Have students make a chart of the pros and cons of producing this material.
6. After the students have had time to work on their charts have a class discussion where they can share the pros and cons they came up with. Use these examples to lead into the concept of consumer choice. Ask students:
 - **What is the student's role and responsibility as a consumer? How much power do they possess?**
 - **Would they spend 25% more on a product if they believed that another product was better from a social or environmental point of view?**
7. Show students the words to the Dar Williams song "Play the Greed" (if possible, play this song for the group). Ask students:
 - **What do the words "Play the Greed" mean in the song? Discuss the statements made as a class. How does this song relate to the idea of a global economy?**

PLAY THE GREED

Song and Lyrics by Dar Williams

I finally learned that the market's righteous holler
Comes from a pale face on a paper dollar
And I betcha got few bucks in your hemp wallet
So throw a tiny wrench in the fiber optic wires
Morals are cheap and you can be the buyers
We can let 'em poison and perish foreign lands
Or we can play the greed right into our hands

Everybody says it can't happen here
Everybody says it can't happen here
Things'll turn around just as sure as they said it
Hell, things change and they all take credit

So ask why there's only forty songs on a station
And ask your cafe about their coffee's plantation
And why is it Arizona hasn't gone solar?
And tell your print shop that hemp grows faster
And it doesn't mean a back room clear cut disaster
The market doesn't care but it wants to understand
And you can play the greed right into your hands

Smiling man says it can't happen here
Channel 4 says it can't happen here
Things'll turn around just as sure as they said it
Hell, the change comes and they all take credit

So roll up your pennies and do your battle
The chairman will start quoting Chief Seattle and
Put little tree frogs on their letterhead
'Cause the market resists and the market absorbs
With a five-pointed leaf on the cover of Forbes
The very same people turned valleys to dams
These are the ones that drain prairies to sand
And they'd just as soon you didn't know this land is your land
But we can play the world back into our hands

Malcom's gonna say it can't happen here
Rupert's gonna say it can't happen here
Things'll turn around just as sure as they said it
Hell, things change and they'll always take the credit

Hell the change comes
Let's let 'em take the credit . . .

Coffee Plantation: Summary of Pros and Cons of Sun-Grown Coffee from Central and South America

PROS	CONS
<p>* By moving into the rainforests in Brazil coffee plantations have moved away from cyclical frosts that claimed up to 90 percent of the next year's product</p> <p>* While an acre of cocoa only brings approximately \$170, an acre of coffee brings approximately \$910</p> <p>* Many children are employed in coffee plantations - this provides quick income for their families</p> <p>* Sun-grown coffee improves yields and reduces fungal infection</p>	<p>* The plants provoke extensive erosion and may attract termites</p> <p>* The plantations are moving into some of the last swatches of the Atlantic rainforest. Only 3% of this rainforest remains intact. The Atlantic rainforest has been declared one of the 25 most threatened ecosystems on Earth</p> <p>* Many children are employed in coffee plantations - they do not go to school and this is a violation of the United Nations Charter on Human Rights</p> <p>* The plantations are causing a decrease in biodiversity in the rainforest as well as decreasing the carbon storage</p>

Important note: because of the negative impact of sun-grown coffee, some consumers are choosing shade-grown coffee. Shade grown coffee can grow beneath the canopy of the rainforests; it is better for birds, supposedly tastes better, and suffers less wind damage and erosion - although the yield is lower. For more information on shade-grown coffee, visit <http://natzoo.si.edu/smbc>.

Worksheet: where does your ‘Stuff’ come from?

With a partner, find each of the items listed below, examine it closely, and write down the name of the country in which it was made or produced.

Name of the item	Where does it come from?
running shoes	
pants	
shirt	
t-shirt	
watch	
knapsack	
textbook	
pen	
pencil	
television set	
overhead projector	
poster	
banana	
apple	
pencil case	
calculator	
toy	
desk	
sporting equipment	
jewelry	
clock	
bicycle	
car	

Points of View

In this activity students wrestle with the concept of sustainable development by examining a variety of perspectives on specific topics (air pollution, endangered species, etc.) After examining these perspectives to gain an understanding of the actions and ideas of others, they develop their own perspective and test them to see if their perspectives would qualify as sustainable development.

Time needed:

Two one-hour lessons

Materials:

For this activity you'll need:

- One copy of all perspective sheets: perspectives A and B, on the topic of air pollution, endangered species, climate change, global economy, arms trade, rights of First Nations, or resources sustainability.
- Copies of "Our Perspective" sheets (one per group of four students)
- Overhead transparencies of the pages entitled Environmental Sustainability and Discussion Questions.
- Masking tape to illustrate the continuum (at least 2 meter long).



Instructions for the teacher:

1. Ask the class what sustainable development means to them. Then explain and illustrate this concept using the following definition:

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. ”

World Commission on Environment and Development (the Brundtland Commission), taken from the report *Our Common Future* (Oxford : Oxford University Press, 1987).

2. Talk about the fact that there is a variety of perspectives and opinions on sustainability and sustainable development, because everyone has knowledge, values, traditions, and beliefs based on his or her own experiences. It’s important to look at different opinions and perspectives in order to understand how other people think, and why they might do what they do. This is how we develop our own perspectives and opinions, and make decisions about issues, events, and how we choose to act.
3. Choose the climate change perspectives to illustrate this activity.
4. Explain and illustrate the idea of a **continuum**: An uninterrupted line representing a range between two end points. A point anywhere along the line can show the extent to which something is nearer to one or the other end points.
5. Tape the long piece of masking tape to the board to represent the continuum (see cartoon graphic).
6. Read both the climate change perspectives out loud with the class following along. Ask the class to imagine that each one represents the ends of the continuum
7. Explain and illustrate the notion that ideas can represent the different ends of the continuum by placing these perspectives at opposite ends of the masking take to represent endpoints (ask students if they agree that these truly are end points; it is quite possible that these perspectives may not be at the extreme end, but just close to the end).
8. Ask students what they think the correct perspective should be, and illustrate how their task will be to draft such a perspective – and then place it on the continuum line, as shown.
9. Divide the class into groups, with at least four students per group. Give each group one set of the topic perspectives (perspectives A and B) plus a blank sheet entitled “Our Perspective”.
10. Give the groups fifteen minutes to discuss each perspective among them. Put up the

Discussion Questions (overhead) for them to refer to.

11. At the end of the time, have each group come up to the front and use tape to place their preferred perspective where they believe it should be on the continuum. Have them read out their preferred perspective to the rest of the class, and explain why - or why not - the activity resulting from this perspective would classify as sustainable development or not.

Questions for Further Discussion:

Choose from the following questions, or develop your own, as a means of bringing the exercise to an end. Some of these questions can become essay topics, or used for class debate and discussion.

1. What did they learn about sustainable development, and the specific topic chosen?
2. "Everything on this planet is connected, and therefore, everything we do has implications and consequences." Is this true? Does this rule hold just for the natural world? Discuss.
3. It costs money to protect endangered species and spaces. Is it important to keep these endangered species and spaces alive?
4. Can all environmental problems be fixed with better technology?
5. Environmentalists believe that in light of the increasing pressure placed on all aspects of the environment through human activities and increases in population, environmentally sensitive practices, responsible choices, and carefully considered policies are needed now more than ever. Do students agree?
6. What are some of the difficulties of balancing our need for resources with sustainable development?

Discussion Questions

1. What things do you like and dislike about each perspective?
2. Do you think one is the correct or best one?
3. What are the values that underlie perspectives A and B?
4. On the blank sheet, write your 'preferred' perspective (one that takes the best features of both, and you can all agree on)
5. Where would you place your preferred perspective on the continuum?
6. If your perspective were adopted and used by all countries, would you be justified in calling the resulting activity "Sustainable Development?"

Sustainable development

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. “

World Commission on Environment and Development (the Brundtland Commission), taken from the report *Our Common Future* (Oxford: Oxford University Press, 1987).

**Concept: Air Pollution
Perspective A**

Industry is currently heavily monitored, supervised, and controlled by existing government policies and regulations relating to waste gases and emissions (exhaust). It is impossible to make all industry non-polluting. In other words, pollution is a part of doing business. The amount of money it would cost to reduce industrial air pollution is very high, and this added cost would necessarily be passed on to the consumer (the public). Since it is extremely unlikely that consumers would agree to increases as much as 400% of their present costs, it is not reasonable to consider forcing industry to become less polluting.

**Concept: Air Pollution
Perspective B**

Industries and our lifestyle result in a blanket of smog (air pollution) that coats many areas of our planet, making the greenhouse effect worse. This air pollution also speeds up ozone depletion in the upper atmosphere. It is this ozone layer that protects the earth from damaging ultra violet radiation. There are other effects of air pollution like acid rain, which causes harm to plants, and to the animals that depend on plants for food or on habitats such as forests. Other toxins or poisons in air pollution eventually fall with rain or snow onto soils and water, and have various negative effects on plants, animals, or aquatic life. Given this, industries themselves must be forced to reduce air pollution and be forced to pay the real costs of air pollution, even if it means decreased profit or even bankruptcy.

**Concept: Endangered Species
Perspective A**

While many people think that the fact that some species appear to be in danger of extinction is an indicator that the environment is facing serious problems, in fact society's goals and objectives for protecting the environment and biodiversity are being met. We believe that pollution and wastes are not a problem, and natural resources and land are being used very well. We should be putting our efforts into developing rules and guidelines that are based on an understanding of economics: namely, that business exists to make profits. Besides, any environmental problems we do create can be solved using superior technology. And species have always gone extinct from time to time. It happened to dinosaurs – and that was long before humans appeared on the earth!

**Concept: Endangered Species
Perspective B**

Species are going extinct at a rate that is thousands of times higher than normal. Biodiversity is the total of all the earth's plant and animal species. This diversity is like the earth's genetic library. The decay or wasting away of the earth's biodiversity is due to the increasing rate of species extinction. Humans use a huge amount of the earth's resources. This resource use, in addition to the fast population increases of humans worldwide, is creating very serious problems for all other plants and animals, and for humanity, that will eventually lead to the failure of the earth's ecosystems, and threaten all the earth's plant, animal, and human communities. Allowing even a single species to go extinct is immoral and unethical; and this sort of behaviour will ultimately threaten our own existence.

**Concept: Climate Change
Perspective A**

The only real consensus or agreement in the global warming debate is that there is a great deal of uncertainty about predicting future climate changes, and that it is difficult to determine why these changes occur. Scientists are unable to isolate and measure variations in global temperatures that have been caused by human activities. In fact, global warming is completely natural. Uncertain issues such as resource depletion, population growth, and our actual impact on the natural environment must not challenge the economics of businesses, which is to make money or profits.

**Concept: Climate Change
Perspective B**

In the past the earth's atmosphere has undergone many periods of warming and cooling. Usually these changes have taken place slowly, over thousands of years, allowing plant and animal populations to adjust to the changes. According to the current scientific predictions for increased global warming, the earth's average temperature will rise higher than it has in the past 125,000 years. The change will occur relatively quickly, which means many ecosystems, plants, and animals will not have time to adjust. Melting of polar ice (raising the world ocean levels), rainfall changes, unpredictable or devastating weather, pest increases, and extinctions will combine to destroy the world as we currently know it.

**Concept: Global Economy
Perspective A**

In North America the demand for many commercial consumer products is very high (for example: clothing, running shoes, TV's, computers, and toys). As a result, there is intense competition among companies producing consumer products. This requires the development of global industries – where companies can establish businesses and factories in countries where they can produce their products for much less. In these other countries, these global enterprises provide much needed jobs and improved economic conditions. In developed countries, they allow for consumers to get easy and inexpensive access to the products they demand.

**Concept: Global Economy
Perspective B**

North American consumer product companies own many factories in third world countries. In many of these factories, working conditions and environmental practices are far below standards accepted and expected here. Workers' unprotected exposure to environmental hazards (for example: toxic chemicals, solvents, hazardous wastes, etc.) results in severe health problems (such as weakening of the immune system, headaches, skin rashes, and diseases of the nervous system). The environmental standards in many of these developing countries are often far below North American standards, are not enforced, or are non-existent. The only moral, ethical, and environmentally responsible course of action is consumers to use items made in their own countries, and if possible in their own bioregion.

**Concept: Arms Trade
Perspective A**

The Arms trade is the making, buying, and selling of weapons. The business of Arms trade is very important for both government and commerce, often providing one of the largest sources of income and jobs in some countries. Beside economic benefits and profits, the arms trade provides jobs that allow individuals to support their families. Every sovereign or independent nation has the right to govern itself, to keep control over its place in the world, and to defend itself in case of invasion. In many countries, individuals have guaranteed rights to arms for self-defence.

**Concept: Arms Trade
Perspective B**

War is hell, and the arms trade aids and abets war. The production and use of weapons, armies at war or taking part in war games, and acts of terrorism cause untold suffering and environmental damage. Nuclear weapons for example can annihilate a given area, as well as contaminate it for decades or centuries, making it unusable and unlivable. Weapon production plants are often very toxic and polluting. War in an industrial area risks large amounts of toxic chemical releases. The abolition of the arms trade is the only ethical thing to do, and would bring peace to many war-torn countries of the world.

**Concept: Rights of First Nations
Perspective A**

Granted, indigenous peoples should have the right to hunt, fish, and harvest natural resources from the land to provide the essentials for survival (such as food, clothing, shelter, etc.), and to maintain a connection to their traditions and heritage. However, these groups should not be allowed to use these resources for commercial profit, especially to the economic disadvantage of existing non-native businesses. A level playing field, and the eventual abolition of special status for First Nations, will help this troubled group survive and prosper into the Third Millennium.

**Concept: Rights of First Nations
Perspective B**

Worldwide, indigenous peoples are fighting to protect land and other rights where they are living, often in conflict with the governments or natural resource industries that wish to displace or move them. Indigenous people usually lived in tribal units of varying sizes and interacted with the environment in a sustainable manner, preserving food sources, fish supplies, trees and plants, and wildlife. They are often better caretakers of the land than "educated" people. When they are driven out, the pressures that drove them (like access to natural resources) are harmful and damaging to the environment.

**Concept: Sustainable use of Resources
Perspective A**

Resources are actually becoming less scarce as techniques for discovering and extracting them improve. Due to new and improved technologies, established deposits of minerals like bauxite, chromium, copper, iron ore, nickel, and zinc, as well as oil and gas, have increased by over 100 percent between 1950 and 1990. As production of these and other resources continues to increase, technological advances will make up for any damaging environmental impacts we cause. Concerns over unsustainable resource use are unfounded, and – given the importance of resource extraction industries to the economy - subsidies to this sector are appropriate.

**Concept: Sustainable use of Resources
Perspective B**

Sustainability involves developing and using renewable resources in a way that will not have a negative impact on the environment, so that future generations will have access to these same resources. The cost of any activity or product must include the cost of the impacts on the environment and any loss to future generations. Sustainable resources include soil, water, air, fish, forests, and renewable energy resources. Non-sustainable activities cause deforestation, water and soil degradation, toxic contamination of wildlife and wilderness areas, greenhouse gasses, ozone depletion, and extinctions. Humans must stop all non-sustainable activities immediately. The extraction of non-renewable resources should be immediately restricted, recycling of these materials legislated, and huge sums of public money should be poured into research and development of technologies such as renewable energy.

Our Concept: _____

Our perspective: _____

Solutions

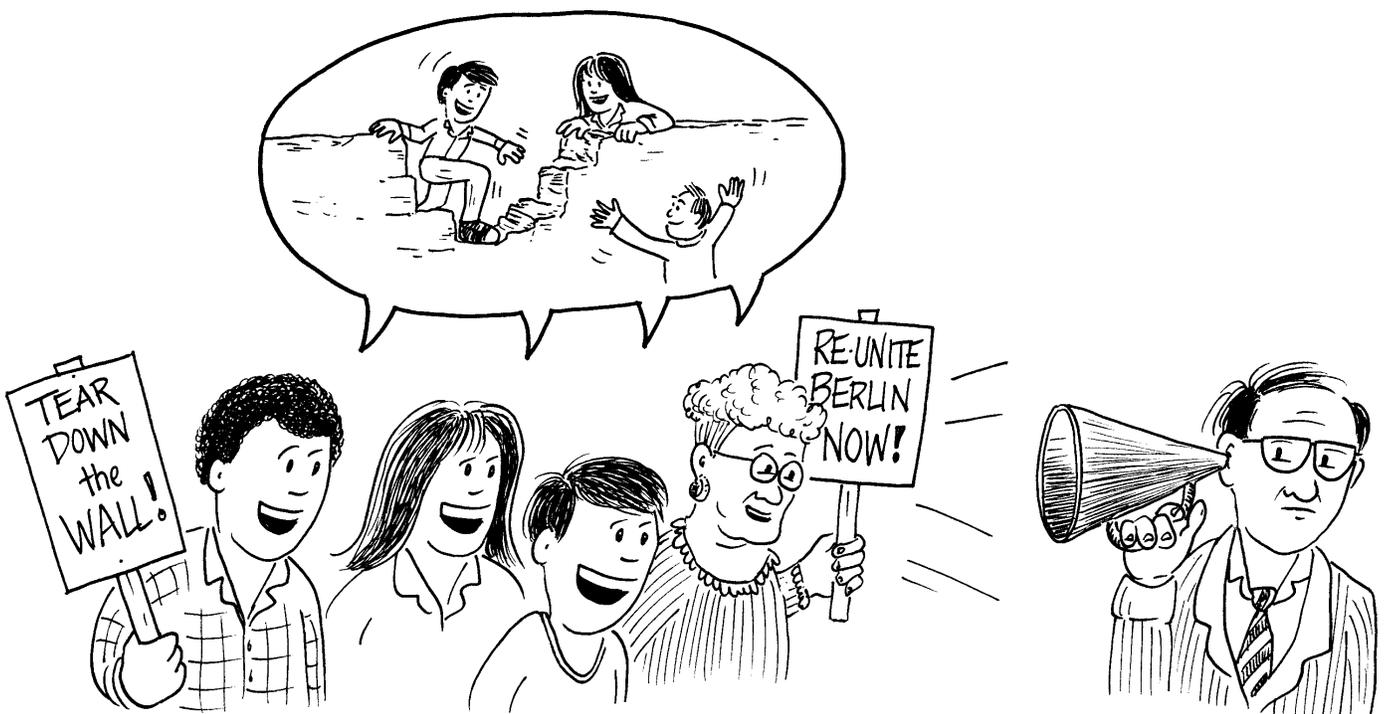
This activity will introduce students to “People Power” and the role of grassroots organizations. Through the use of a case study on the fall of the Berlin Wall they become familiar with a situation where people were able to effect change. The activity ends with an assignment and discussion of grassroots organizations, success stories, and how students can become involved. As Margaret Mead said: *“Never doubt that a small group of committed citizens can change the world: indeed, it is the only thing that ever has.”*

Time Needed

Two 80-minute classroom periods

Materials

- The “Fall of the Berlin Wall” Case Study provided (overhead or handouts)
- A map of the town/ city you live in for each student.
- Markers or coloured tacks
- Assignment worksheet on environmental groups
- “A Sampling of Environmental Organizations across Alberta and Canada” (Overhead or handouts)



- How would this wall affect your life?
 - Who in your class wouldn't be there?
 - Would you be separated from your relatives or friends?
 - What activities could you no longer participate in?
 - Could you still attend this school?
 - Which side would you rather live on?
 - What (if anything) would you do in response to the building of this wall? If you wanted to, what are some steps you could take to help bring down this wall?
2. Place students in groups of 4 or 6 and give each group a copy of the one-page document "the Fall of the Berlin Wall." Have students read it and discuss the role of 'People Power' in bringing the wall down. Emphasize to students that practically no one in the world believed that the wall would ever fall – until the indomitable power of the people was brought into play.
 3. Ask the students to try and compile a list of grassroots organizations they know off regionally, nationally and internationally. Once they have come up with a list use the list and website information provided to add to it. Use this information to lead into the discussion questions below.

Assignment – Environmental Groups

4. Ask students to go on-line and compile a list of environmental groups active in Alberta and in Canada (you may wish to provide them with the list that appears below). A worksheet is provided for your convenience.
5. After students have completed the assignment, emphasize to students that many grassroots groups are active, and that they continue to be very effective in helping people focus their efforts – which in turn is a very powerful political force.
6. Share the following quote with students. Have students discuss how they feel about this quote. Do they feel that it is correct?

*"Never doubt that a small group of committed citizens can change the world:
indeed, it is the only thing that ever has."*

Margaret Mead

The Fall of the Berlin Wall

After World War II the Western powers insisted that Berlin be divided into 'East' and 'West'. They were concerned that since the capital city Berlin was in the Soviet-occupied zone it portrayed the image that Russia was the true victor over Hitler. As a result West Berlin, like Western Germany, became capitalist and democratic while East Berlin remained, like the rest of East Germany, communist. On August 13, 1961 an actual brick and barbed wire wall that was 30 miles long was erected. This made it impossible for people from East Berlin to leave to join West Berlin, which is what the government wanted as they were concerned about a 'brain drain'. Both the country of Germany and the city of Berlin were split in two.

During the 1980's public protests began in Eastern Germany demanding greater religious freedoms, less political oppression, and the right to voice their opinion. Russian Prime Minister, Mikhail Gorbachev, began adopting an open attitude but the premier of East Germany insisted that the wall would stand for a hundred years more. In 1989 Hungary opened their border and many East Germans took refuge there. A new and more aggressive movement began by the people of East Germany. Demonstrations were becoming larger and carried more weight. Thousands were taking to the street with the message of "No more violence!" and "join us, join us!" More and more people were joining and the message could soon be heard in every street. By October 16, 1989 the number of protesters in the streets had reached the millions, and loudspeakers could be heard throughout the city day and night.

As a result of this 'People Power', the government of East Germany was compelled to give in and after existing for 28 years the wall came down on November 9, 1989.

Assignment – Environmental Groups

1. On a separate sheet, write down the name and URL of ten environmental groups. (Try to choose ones that are active in Alberta, and active across Canada). In your own words describe what each group is concerned about, or what their focus is (Hint for searching: this may be called the mandate, mission, or vision, depending on the group).
2. Do any issues or campaigns appeared on several websites? If so, what are these issues – and why do you think this issue surfaces on more than one website?
3. Discuss success stories from these organizations. What factors do you think led to them having a successful campaign?
4. Which is more important: the organization itself, or the people who join the organization or otherwise contribute to the group's efforts.
5. Is there overlap between the groups you chose? Is this a good thing or a bad thing? Explain.
6. Do any groups make an effort to give elementary students things to do? What about students in secondary school? Comment on how well these groups engage students.
7. What can you do (individually and collectively) to help with an environmental campaign? What are some different things you could do to become involved in grassroots organizations?
8. If you decided to become active and actually do something about the environment, what issue would you focus on? Explain why.
9. Would you choose to join any of the groups you've examined? Would you give money to this group? Explain why or why not.

A Sampling of Environmental Organizations active in Alberta and Canada

The following environmental organizations focus their activities in Alberta:

Canadian Parks and Wilderness Society (CPAWS), Calgary-Banff Chapter: www.cpawscalgary.org

Alberta Wilderness Association: albertawilderness.ca

Alberta Environment Network: www.web.net/~aen/

Federation of Alberta Naturalists: www.fanweb.ca

Bragg Creek Env. Coalition: www.nucleus.com/~bcec/

Bear Society: www.bearsociety.org

Environmental Law Centre: www.elc.ab.ca

Dr. Ray Rasmussen: www.raysweb.net

The following are national or international organizations:

Canadian Nature Federation: www.cnf.ca

Friends of the Earth - Canada: www.foecanada.org

Greenpeace Canada: www.greenpeace.ca

Pembina Institute for Appropriate Development:
www.piad.ab.ca

Western Canada Wilderness Committee:
www.wildernesscommittee.org

David Suzuki Foundation: www.davidsuzuki.org

World Wildlife Foundation: www.wwfcanada.org

Rainforest Action Network: www.ran.org/ran

Sierra Club www.sierraclub.ca

Nature Conservancy of Canada: www.natureconservancy.ca

Canadian Parks and Wilderness Society: www.cpaws.org

Role Play

Here is the proverbial sixty-four thousand dollar question: *“Would policies based on sustainability provide for human need as effectively as policies designed to promote economic growth?”* Students write an introductory paper, followed by a role play in which different stakeholders respond to a government-sponsored public hearing on the question. (Note: this debate question was developed by Mike Nickerson and the Sustainability Project).”

Time Needed:

Two one-hour periods

Materials:

- ☐ Question overhead (on overhead transparency)

Instructions for the Teacher

1. Show students the overhead provided. Have them write the question down, and ask them to write a brief essay on their answer to this question. (Option: at this point some teachers have chosen to ask students assume the position of different stakeholders as they write their answers.
2. Hold an informal discussion with students and explore the variety of answers students gave to the question.
3. **Role Play.** Ask students to assume the following roles as spokesperson in charge of environment, family, and business groups (if you wish to create other roles, ask students to brainstorm them with you!). Set up a panel discussion format, in which groups of students prepare and deliver a three-minute answer to the question. Subsequently members of the government task force may question the sector representatives, and other sectors may challenge some of the assumptions and positions of other groups.



***Question:
“Would policies
based on
sustainability
provide for human
need as effectively
as policies
designed to
promote economic
growth?”***

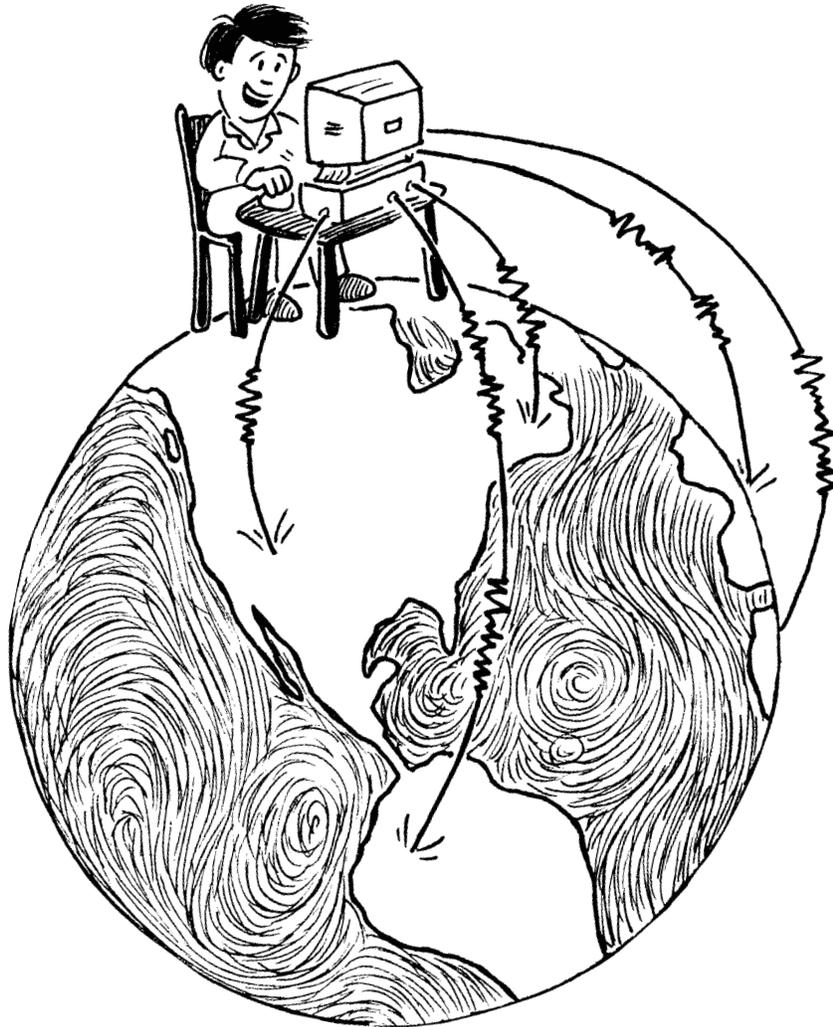
Sustainability On-Line

Few phrases have generated as much text, controversy, and debates as “sustainable development.” In this activity students go on-line to explore the concept

- ❑ On-line assignment worksheet (one per student)

Instructions for the Teacher

1. Distribute worksheets to students, and go over the various sections. Feel free to add any sections that you feel are necessary to complement other work you have done as a class.
2. The last worksheet question is: How can people and groups concerned about living sustainably actually use web-based information and resources on sustainable development? Discuss students’ answers to this.



On-line Assignment - Worksheet

1. For this assignment, visit each one of the following four sites:

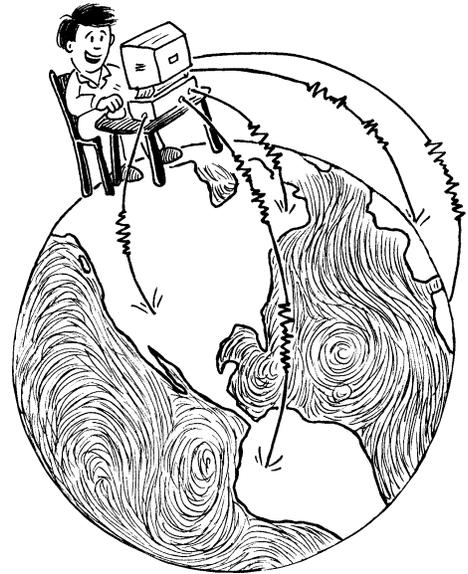
United Nations Sustainable Development : <http://www.un.org/esa/sustdev/>

Sustainability Project: <http://www.cyberus.ca/choose.sustain/>

The Natural Step: <http://www.naturalstep.org/>

International Institute for Sustainable Development: <http://iisd.ca>

2. Choose TWO of them and describe these groups on a separate page, using the format below.
3. Then choose two more sites on sustainable development that appeal to you and describe them - again, using the format below.
4. How can people and groups concerned about living sustainably actually use web-based information and resources on sustainable development?



Report Format

1. URL of the site:
2. Name of the site:
3. Purpose of the site:
4. Name of the organization that sponsors the site
5. What is the mission of the organization that created this site?
6. What are the major projects or initiatives of this site?
7. Where do you think the funding comes from to maintain this site and the organization that created it?

State of the City

In this activity, students learn about sustainability indicators and local sustainability trends through analysis and study of Sustainable Calgary's illustrated 62 page "State of our City Report - 2004" report.

- Sustainable Calgary's illustrated 62 page "State of our City Report - 2004" report.
- overhead transparency of page 5 of this report.

Note: this report can be downloaded from the Sustainable Calgary's website at www.sustainablecalgary.ca.

Instructions for the Teacher

1. Repeat for students the definition of sustainable development: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."
2. Have students think about their own community. How would they be able to tell if their community is moving towards sustainability or not? Brainstorm how to measure it - try to define indicators of sustainability. Revisit each indicator, reminding/challenging students to make the indicators concrete and measurable.



3. Have students refer to the List of Indicators in the Report (page 5). Through a community process (described on page 6) the community of Calgary came up with 36 indicators of sustainability. This page shows (using a pattern of happy faces or sad faces) whether or not the trend of this indicator is towards or way from sustainability.
4. Ask students to glance at this list of indicators. Ask them if they have an intuitive sense as to whether or not Calgary is moving in the direction of sustainability. Point out that the icon that indicates a trend towards sustainability is a smiley face - and that of the 36 faces on this page, only nine are smiley faces.
5. Have students each choose six indicators that are of direct interest to them (e.g. a student who is a jogger might wish to choose "Air Quality." You may choose to ask students to pick one indicator from each category (e.g. the "Air Quality" indicator is one of six contained in the category "Natural Environment Indicators").
6. Have students read each of their chosen indicators (brief report on these six chosen indicators might be appropriate). Then, have students choose one that they will use to make a brief report on to the rest of the class. An illustrated poster created by each student might be an excellent complement to their presentation, and a great visual aid for classroom visitors!

TIP: You might wish to have a 'sign-up' for indicators to avoid the situation in which several students choose the same indicator.

