TEACHER'S KIT 2000

FOLLOW-UP MATERIAL TO THE
ADVENTURES OF EUGENE GREEN AND THE CLEAN MACHINE

TERMS TO KNOW AND TEACH

Some Key Concepts in Nature

ENVIRONMENT - Interrelationships among different elements influencing the life of an individual or a population.

RENEWABLE - Resources which can be replaced infinitely by nature or through management programs. Drinking water, trees and hydroelectric power are renewable resources if used and managed properly.

RESOURCE - Raw material and forms of energy used for the production of consumer goods.

NON-RENEWABLE RESOURCE - A natural resource which exists in limited quantity (gold) or takes an extremely long period of time to renew itself (oil).

CONSERVATION - Behaviour aimed at making better use of or protecting natural resources and wildlife.

HABITAT - The environment which creates a home, characterized by food, water, shelter and space.

SUSTAINABLE DEVELOPMENT - Is a concept through which, when achieved, humans will live and prosper in harmony with our environment. This would involve maintaining a steady balance between our environment, our economy and the health of people.

TERMS TO KNOW AND TEACH

Nature's Basic Elements

SUN - Our planet's only source of life-forming energy. Without it, plant life - and hence all other life forms - could not exist.

WATER - The source from which all life on earth has evolved. No life can be sustained without it.

AIR - The gas which fills the space between our land & water surfaces and our atmosphere. Very few 'land animals' can survive without it.

SOIL - The ground in which most surface plant life holds its roots. It retains and provides all nutrients from which plants grow, survive and thrive.

TREES - Are referred to as the Earth's lungs. They clean our air by absorbing pollutants and giving off oxygen, the most important part of the air we breathe.

TERMS TO KNOW AND TEACH

Nature's Basic Elements In Peril

WATER POLLUTION - Effects the health of all organisms coming in its contact. When plants drink polluted water they often get sick and many die. Those that do live are likely to be diseased or deformed in some way. Water quality is affected by acid rain as well as agricultural chemicals used countries away. Lack of sewage treatment and other forms of improper waste disposal also add to the pollution of our water tables. People drinking or preparing food with even mildly polluted water are more likely to develop sickness and disease.

ACID RAIN Emissions of sulfur and nitrogen oxides escaping from industrial smoke stacks and automobile exhaust. These emissions can be wet or dry. Dust, fog, rain and snow are forms which acid rain can take.

AIR POLLUTION - Air pollution has been proven to affect the health of all ecosystems it touches. When plants take in polluted air, their growth is slowed and they are more prone to disease. The exact same is true for humans and other animals. Children growing up in areas where the air is more heavily polluted are up to four times more likely to develop asthma and other allergies, as well as cancers and other diseases. Major causes of air pollution are the burning of fossil fuels (vehicle exhaust, industrial smoke stacks) and methane (large scale farming of large animal, i.e.. beef).

SMOG - A smoke, fog and sunlight combination which results in air pollution. It creates serious health hazards in cities and damages crops and forests in rural areas.

SOIL POLLUTION - Occurs from pesticide, herbicide and fertilizer use, as well as from acid rain and other forms of air and water pollution. Once in the soil, pollutants can take generations to disperse into nature, affecting all that is grown in it during that time. Water tables can also be poisoned by pollution in the soil.

SOIL EROSION - Occurs naturally, but is happening in some areas so quickly that the soil is almost too damaged to use. The soil in areas that have been cleared of their native vegetation - for farming or as the result of clearcutting or crop burning - is left completely exposed to wind and moving water. Our grain, vegetable and wood farmers are now learning that practices such as building shelter belts and leaving crop residue to insulate the ground help to keep the soil, its moisture and nutrients in place.

DEFORESTATION - When trees are harvested faster than they are planted, preventing a forest from rejuvenating itself. On top of losing entire ecosystems and the plant and animal species that called them home, the Earth's loss of trees means less pollution is being filtered out of our air. Our pollution levels, however, both worldwide and for Canada alone, are still rising steadily.

RAINFORESTS - Found all around the world, our closest rainforest is in British Columbia. Because of their density and the varieties of wood types they contain, our rainforests have been overused and abused. In many cases of rainforest deforestation, the trees are not even used but rather are burnt to make room for large-scale animal farming, again increasing levels of air pollution while removing the means for Nature to cleanse itself.

BOREAL FOREST - In Canada, our boreal forest is found in almost every province and territory. It is a part of a belt of mostly evergreen trees that circle the earth just south of the Arctic Circle. Almost half of Manitoba and Saskatchewan are classified as boreal forest.

CLEARCUTTING - The removal of all trees in an area, and consequent destruction of the original ecosystem and state of habitat. Clearcutting is used primarily by the pulp and paper industries and often, unfortunately, in our rainforests. It is the tree farming practice that is most harmful to the environment and often leaves the area unable to regenerate itself

TERMS TO KNOW AND TEACH

Our Climate

OZONE - Highly oxidizing gas. High concentrations may be irritating and toxic to humans. It is produced at ground level by the interaction between industrial pollutants (such as car exhaust) and sunlight. Ground level ozone is also called smog.

OZONE LAYER - Ozone gas protects life on earth by filtering out harmful ultraviolet radiation from the sun. The ozone layer is located in the stratosphere (one of the upper layer's of the earth's atmosphere).

GREENHOUSE EFFECT - The trapping of heat in the earth's lower atmosphere caused by an increase in gas concentration. Carbon dioxide, CFC's and methane are gases which contribute most to this situation, thought to be a major contributor to climate change. These are also the same gasses which cause acid rain. We can help reduce greenhouse gasses and acid rain by switching to fuel alternatives, preventing deforestation, cutting down industry energy consumption and building and using fuel-efficient homes and vehicles.

CARBON DIOXIDE Produced by the burning of fossil fuels, *i.e.*: vehicle exhaust, industry smoke stacks, etc., and makes up 65 % of our greenhouse gasses.

METHANE - Makes up 20% of our greenhouse gasses. The largest amounts of methane gas are produced by large-scale animal farming. The of our landfill sites also mix to create it.

CHLOROFLUORO-CARBONS -(CFC's)- Chlorine-based compounds contributing to ozone layer depletion. CFC's can be used in aerosols as propellants, coolants in refrigerators and air-conditioning, in fire extinguishers and solvents. CFC's make up over 10% of our greenhouse gasses.

CLIMATE CHANGE - Many scientists predict the earth's weather patterns to enter a warming trend for at least the next decade. Research has shown a connection between high production of greenhouse gases and the onset of our climate change. Our ozone layer is in a depleted state as a result of these and other human pollutants.

TERMS TO KNOW AND TEACH

Clean Energy

HYDRO POWER — Energy harnessed from moving water. Aside from local habitat damage caused as hydro dams are built and the pollution caused in the manufacturing and transportation of the materials used in building them, hydro-electric power is relatively safe on our environment.

BIOMASS ENERGY - The burning of vegetable matter instead of coal, oil, or natural gas. Although residue and fumes are still released into the air, biomass energy produces an average of 5 times less pollution.

SOLAR POWER - Energy harnessed from the sun. Aside from minimal pollution caused in the manufacturing of the materials used in making the panels which harness the energy, and attached wiring, solar power is pollution free as well as renewable.

WIND POWER - Energy harnessed from the wind. Aside from minimal pollution caused in the manufacturing of the materials used in making the wind mills themselves, and attached wiring, wind power is pollution free as well as renewable.

TERMS TO KNOW AND TEACH

Waste Reduction

REDUCE - The most important of our 5 Rs. Buying, using and wasting less are the keys in achieving any sort of sustainable development. We can reduce our waste by composting and recycling, using recycled products, buying food in bulk, purchasing products with minimal packaging, and bringing your own reusable bags to the store.

REUSE - Using a product again for the same purpose or for another use. Reusing is the second of the 5 Rs because it uses almost no energy and creates zero pollution.

RECYCLE - The reprocessing of used materials into new products. Recycle is the third of the 5 Rs because of the energy it requires and the pollution it can cause.

RECYCLABLE - Materials which can be and are being recycled to a significant degree (such as glass, paper, aluminum, etc).

NON-RECYCLABLE - Materials which cannot be reprocessed for use as another product.

SOLID WASTE - All solid and semi-solid wastes, including trash, garbage, yard waste, ashes, industrial waste, swill, demolition and construction waste and household discards such as appliances, furniture and equipment.

SOLID WASTE MANAGEMENT - The control, handling and disposal of all solid waste. One goal of solid waste management is to reduce waste to a minimum.

BIODEGRADABLE - Material which can be decomposed by bacteria or other biological means.

NON-BIODEGRADABLE - Materials which cannot be decomposed by bacteria or other biological means.

COMPOST - A process in which organic materials such as kitchen and yard wastes are broken down by microorganisms into a soil replenishing material. Compost is a strong natural fertilizer and reduces the volume of waste going to landfills. Any organic waste ranging from leaves and grass clippings to teabags to fruit and vegetable waste may be composted.

TERMS TO KNOW AND TEACH

VERMI-COMPOST - Is a compost system in which worms work with the microorganisms to break down compostables.

LANDFILLING - Process by which wastes are disposed of under controlled conditions on land or land cover. The wastes are buried under covering materials such as earth or plastic and compacted. A province the size of Ontario loses over half a hectare - the size of a football field - of good land *every day* to make room for garbage.

LEACHATE - Contaminated water which leaks from landfill sites. It filters into the water table and can contaminate local water supplies.

PACKAGING - Materials used to protect products against elements which otherwise could modify their qualities. Packaging can be made of plastic, paper, steel, aluminum, glass, mixed materials, etc. Some landfill sites report up to 60% of their contents is packaging.

HAZARDOUS WASTE - Materials posing an immediate, severe threat to the environment, humans, wildlife, water, air, etc. The creation and processing of many non-organic materials, like plastics and chemical solutions, leaves us with hazardous waste.

INCINERATION - Waste disposal process through which combustible wastes are burned and transformed into ash and gases. The result is that pollution is pumped into the atmosphere while landfill space is saved.

TERMS TO KNOW AND TEACH

Earth-Friendly Consumerism - Materials

ORGANIC - A description put on farmed matter, from fruits and vegetables, to animals, to cotton and wheat crops which have been grown and processed, from start to finish, without the use of any chemicals or hormones.

PESTICIDES - Are (usually) chemicals used to kill off small animals in areas where plant life is being gardened or farmed. Research indicates that after numerous pesticide applications a lawn is likely to be more vulnerable to pest attacks. The reason for this is that pesticides also kill earthworms, which help to keep soil healthy, and beneficial organisms that prey on harmful insects. Effective alternatives to chemical insecticides are natural insect deterrents. Of the 36 most commonly used lawn pesticides: 34 can cause cancer, 14 cause birth defects, 11 have negative reproductive effects, 21 damage the nervous system, 15 injure the liver or kidneys, and 30 are sensitizers or irritants. 12 of the 40 most commonly used agricultural pesticides are suspected carcinogens. Pesticides can be found in food, clothing, building materials and cosmetics.

HERBICIDES - Are (usually) chemicals used to kill off plants such as weeds that interfere with the main plant being gardened or farmed. Research shows that using herbicides for a prolonged period of time can do long term damage to the soil, eventually making it difficult to grow almost any plant, including the one initially protected by the herbicide. They can be found in food, clothing, building materials and cosmetics.

HEMP - A plant which can thrive in almost any climate, hemp grows quickly and yields crops 4 times more economical in the space and time they require then wheat or tree crops. Hemp contains its own natural herbicides and pesticides, and is almost always grown organically. As the second strongest natural fibre on earth, materials such as clothing, paper, building materials, textiles and even plastics made from hemp are guaranteed to last. Extremely nutritional and anti-carcinogenic oils, seeds and nuts can be extracted from the hemp plant. The most promising use of hemp to date may be its potential as a source of biomass energy.

PLASTICS - Made from petroleum and natural gas. Often used in food packaging, many plastics contain high levels of hormones and substances harmful to humans and other animals. These are transferred from the packaging to the food or drink and into the consumer.

P.E.T. - Polyethylene terephthalate. Soft drink containers are made from this type of plastic. P.E.T. bottles can be recycled and used for products such as containers, insulation, or clothing. Contains high levels of various hormones, including estrogen, which enter the edible product and in turn the person consuming it.

TERMS TO KNOW AND TEACH

Earth-Friendly Consumerism - Food

FOOD ADDITIVES - Substances added to food which enhance or preserve it and which generally have no nutritive value themselves. Research has shown some food additives, when consumed often and over a period of time, to be harmful to some of our body's systems.

ORGANICALLY GROWN FOOD - Food grown using natural fertilizers such as compost and manure instead of chemical fertilizer. Pesticides are replaced by natural pest control. Many food stores are now carrying organically grown food products, including fruits, vegetables, chocolate bars, potato chips, chicken and fish.

FLOURS AND SUGARS - Generally speaking, anything that has been processed, refined or bleached has been stripped of its natural nutrition. Flours that are bleached are left with absolutely no nutritional value and are quite difficult for the average digestive system to process. On occasion these bleached flours are 'enriched' in the factory, adding low levels of selected vitamins and minerals. These additives are also difficult to digest and are not even absorbed into many people's bodies. Refined sugars have undergone a series of chemical treatments and reactions, leaving a product that is unnatural and unhealthy for the body. The sweeteners fructose and sucrose are also in this category. Bleaching and refining of almost any sort, whether or not it is food related, pollutes both air and water.

TERMS TO KNOW AND TEACH

Earth-Friendly Consumerism - Clothing

SYNTHETIC FIBRES - Materials made from either transformed natural fibres or substances like petroleum and carbon or chemicals. Some examples are nylon, acrylic, polyester and rayon. The creation of these materials uses much more energy and produces much more pollution than more traditional natural fibres, like wool, linen, cotton and silk.

ORGANIC COTTON - Cotton grown without the use of any chemical pesticide, herbicides or fertilizers. Traditionally grown cotton uses some of the most harmful chemicals in farming to fertilize and control pests. Studies have shown these substances to have poisoned the soil, air, ground water and the people living and working near areas where cotton is farmed. Organically grown cotton is just as good or better than cotton grown in chemicals and has no harmful impact on our environment.

ORGANIC WOOL - Wool produced without the use of chemicals in the feed, hormones or pesticides. The resultant wool is free of chemical residues and both the sheep and the humans are protected from adverse effects.

HEMP - Organically grown and naturally very strong, hemp clothing is very durable and usually quite comfortable. Everything from knitting wool to linens and silks are made from hemp fibres, producing everything from socks and underwear to sweaters and scarves to dress pants and suits to jeans and T-shirts.

ECO FIBRE - Waste cotton from regular cotton fabric manufacturing is recovered and used for Eco Fibre.

ECOSPUN - The trademark name of a polyester fibre made from recycled P.E.T. (plastic pop bottles). Often made into a fleece and used for pull-over sweaters, Ecospun is also used to make canvas- based clothing like backpacks and caps.

How Can We Protest Our Resources?

Protecting the Atmosphere: Our atmosphere is under increasing pressure from greenhouse gases that threaten to change the climates and chemicals that reduce the ozone layer. Greater energy efficiency out of existing power stations is needed as well as developing new, renewable energy resources such as solar, wind, hydro, ocean and human power, while reducing reliance on non-renewable resources of energy such as fossil fuels.

Planning and Management of Land-Use: Increasing demand for land and its natural resources is creating competition and conflicts. Sustainable use and management of land should include landscape ecological planning, traditional and indigenous land practices and the active participation in decision-making by people affected by land planning.

Combating Deforestation: There is a need for concerted international research and conservation efforts to control the harvesting of orests by promoting indigenous technologies and agro-forestry and expanding the shrunken world-forest cover.

Agriculture and Rural Development: The world's long-term ability to meet the growing demand for food and other agricultural products is uncertain. The priority must be to maintain and improve the capacity of agricultural lands with new technologies and crops to support an expanding population.

Conservation of Bio-Diversity: The use of biological resources to feed and clothe us, to provide us with housing and medicines accelerates the loss of bio-diversity. Urgent and decisive action is needed to conserve and maintain genes, species and ecosystem.

Sustainable Bio-Technology: The success of bio-technology programs depends on highly trained scientific professionals who use traditional knowledge and modern technology to change the generic material in plants, animals and microbes and create new products such as vaccines, increase soil fertility and crop resistance, improve treatment of sewage, etc.

Protection of the Oceans: Oceans are under increasing stress from pollution, over-fishing and general degradation. Nations must control and reduce the pollution of the marine environment and maintain its life support capacity.

Protecting and Managing Water: In the developing world, one person in three lacks safe drinking water and sanitation: basic requirements for health and dignity. A cleanup of the most obvious sources of pollution is needed in order to have safe drinking water and sanitation for all by the year 2025.

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Management of Toxic Chemicals: There are presently no less than 100,000 commercial man-made chemicals. Countries need to develop and share expertise for a sound management of toxic chemicals and prevent illegal traffic in toxic and dangerous products.

Hazardous Wastes: Developing countries have come under pressure to accept unpleasant imports of hazardous waste which pose a risk to people and the environment. Developed countries have an obligation to promote the transfer of sound technologies and reduce hazardous waste.

Solid Waste and Sewage: Growing quantities of garbage and sewage from our cities pose threats to our health and environment. An urban waste prevention approach needs to be implemented so that by 2010, all countries should have national plans for waste management.

Radioactive Waste: The use of radioactive substances is growing in nuclear power production of electricity, medicine, research, and industry and so is waste. It is important to ensure training and financial support to developing countries that have nuclear programs to ensure safe and responsible management.

Who Can Make A Difference?

Sustainable Deveolpment is primarily the responsibility of every government, but the commitment and involvement of all social groups is critical to the implementation of the objectives, policies, and mechanisms agreed to by all governments at the Earth's Summit.

Women: Governments are urged to give girls equal access to education, to make health care systems responsive to women's needs and to bring women into full participation in social, cultural, and public life.

Children and Youth: Children and youth make up nearly one third of the world population. Governments are urged to combat abuse of the rights of youth, especially females in certain cultures, and to ensure that all children have access to education.

Indigenous People: Indigenous people comprise about 4% of the world's population and their numbers are decreasing. Governments and international organizations should protect their rights and patrimony, recognize their traditional knowledge and resource management practices and enroll them in full global partnership.

Non-Governmental Organizations: Non-governmental organizations form a network in both developed and developing countries and play a vital role in the shaping and implementation of participatory democracy which can be integral to the implementation of sustainable development.

Local Authorities: Local authorities, such as municipal governments, should consult citizens and community, business and industrial groups on local programs, policies, laws and regulations to achieve Agenda 21's objectives.

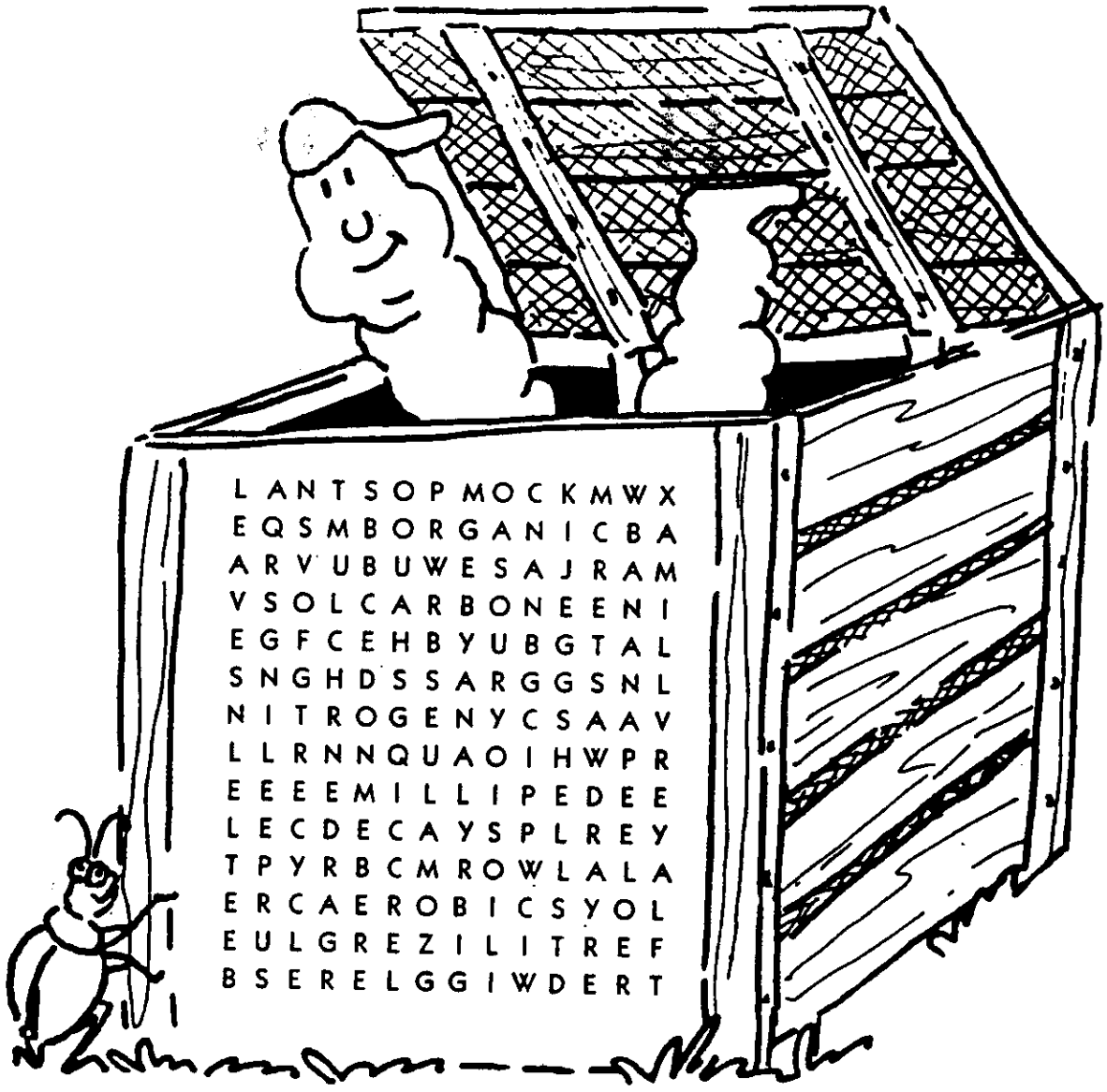
Workers and Trade Unions: Workers will be among those most affected by the changes needed to achieve sustainable development. Through elected representatives, workers must be involved in promoting socially reponsible economic development.

Business and Industry: Responsible behavior in the private sector is a prerequisite to achieving sustainable development. Entrepreneurs can play a major role in improving the efficiency of resource use, minimizing wastes and protecting human health and environmental quality.

Science and Technology: Scientists and technologists have special responsibilities to search for knowledge and to help protect the biosphere.

Farmers: Farmers are directly responsible for one third of the land surface of the Earth. They require economic and technical assistance that will encourage them to implement self-sufficient, low-input and low-energy agricultural practises.

IN SEARCH OF COMPOST



Can you find the following words in the compost box?

aerobic
banana peel
beetle
bury
carbon
compost
core
decay
egg shells
fertilizer
garden
grass
layer
leaves
millipede
mulch
nitrogen
organic
peelings
recycle
red wiggler
slug
soil
sow bug
worm
yard waste

CLEAN ENERGY CUT-OUT

In the past, our great minds created technology that helped us use our environment. Starting this Earth Day, let's use our minds to change the use of technology and help things in our environment (not hurt it).

EARTH DAY CANADA

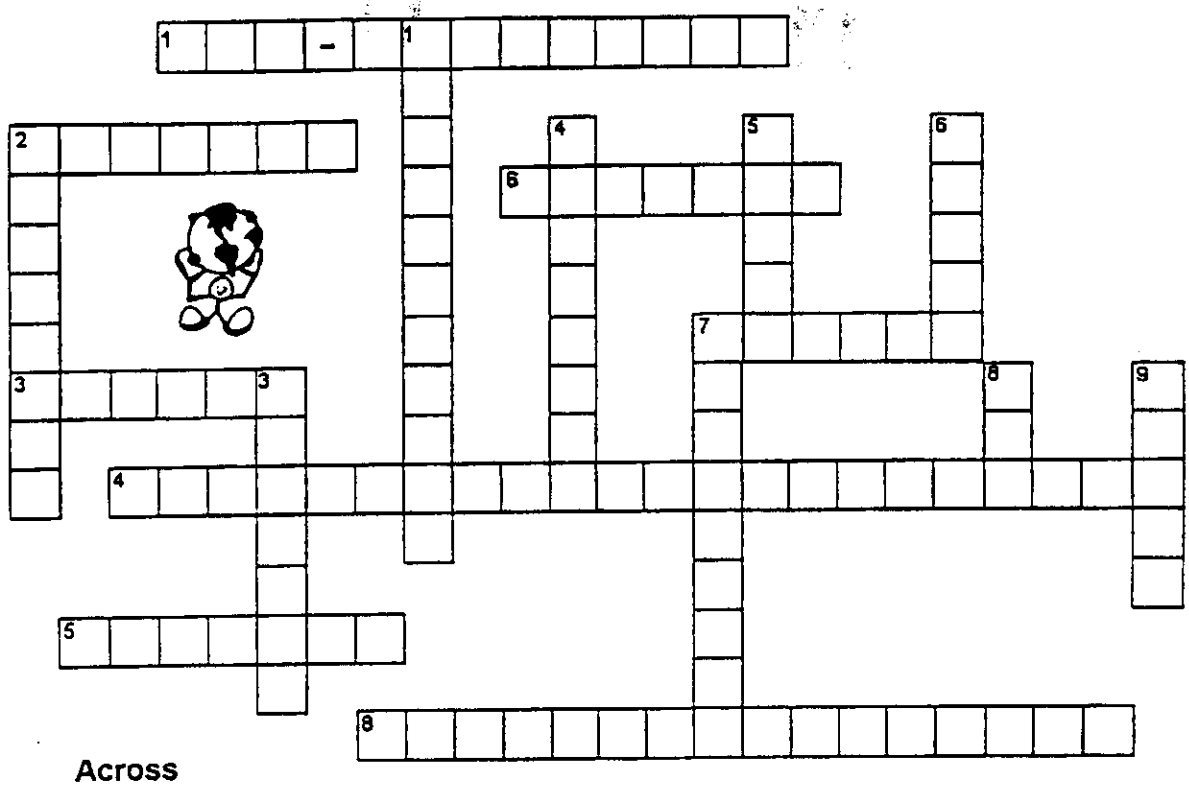
INSTRUCTIONS:

1. Cut out the squares and piece them together like a puzzle.

2. Once you've completed the puzzle, see if you can answer the following questions:

- **What technologies can you ID in the picture?**
- **What resources (e.g. water) do each of the technologies use?**
- **How do these technologies "help" the Earth?**
- **Why is it important for us to use more technologies like these?**

ACROSS THE WORLD CROSSED WORDS



Across

1. A natural resource, like oil or gas that can only be used once.
2. A process which turns food and garden waste into soil
3. To use less of a product is to _____.
4. The type of development that balances the environment, economy and people.
5. A product that we used to throw away but now make a new product again
6. The space where a plant or animal lives.
7. The most important of the 3R's?
8. A type of energy we get from water?

Down

1. What everything around us is called?
2. To use resources wisely
3. When habitat is destroyed, plants and animals can become this?
4. Where garbage goes.
5. When you do not use energy wisely, you _____ it.
6. To use a product again.
7. A natural resource that can be grown again or used again.
8. Where hydroelectricity originates from?
9. The word Hydro means?

Reduce, Environment, Water, Hydroelectricity, Reuse, Recycle, Habitat, Conserve, Extinct, Landfill, Renewable, Non-renewable, Dam, Compost, Reduce, Waste, Sustainable Development

Reusable VS. Non-reusable

OBJECTIVES:

This activity will introduce students to concepts such as why we package things (convenience, freshness, cleanliness, or for sales promotion) and how packaging can affect our environment if we throw it away. They will identify reusable and non-reusable objects. Students will be introduced to the idea of being responsible consumers by buying items which will not end up hurting the environment. The activity will show alternatives so that students can discuss choices people make when they buy products.

MATERIALS:

- *durable container such as a plastic container*
- *piece of cheese*
- *cheese in a snack pack*

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PROCEDURE:

1. Place a small reusable storage container containing a piece of cheese next to a cheese pack.
2. Discuss the differences between the two packages. Which packaging/container will be used over and over and not become garbage? Which one will probably add to the garbage problem?
3. Discuss what could be done with the packaging instead of throwing it AWAY.
4. Examine and discuss other examples of reusable and non-reusable containers and packaging.

- *other examples of non-reusable and reusable containers, such as:*

Non-reusable
Drink boxes
Aluminum drink cans
Plastic wrap
Milk carton
"Bubble" packaging

Reusable
Thermos
Refillable glass bottle
Plastic food container

MATERIALS
(Follow-up Activity)

- *shopping list*

FOLLOW-UP ACTIVITY:
THE GROCERY STORE

1. Develop a shopping list with students and visit a grocery store.

2. Have students separate the items they have "purchased" into different categories or groupings. The categories can be decided by the class.

3. Have students separate the items into three categories: items that come in reusable containers, items that come in non-reusable containers, and those that do not have any packaging.

4. Examine the items that come in non-reusable containers or packaging and discuss other ways these products could be sold, or alternative products that could be purchased, that would result in less waste.

5. You may want to have the store manager speak with the students about packaging.

ENVIRONMENTAL MEASURES

Take the test and see how you measure up. Discuss the ways you might need to improve. Give the test to a friend or family member. How do they measure up?

Survey says.....	yes	sometimes	no
1.I use both sides of paper when I can.	10	5	0
2.I make decisions to buy less garbage.	10	5	0
3.I make decisions to make less garbage.	10	5	0
4.I make decisions to buy less packaging.	10	5	0
5.I use water wisely and not to excess.	10	5	0
6.I use reusable dishes and cutlery.	10	5	0
7.I reuse before recycling.	10	5	0
8.I compost.	10	5	0
9.I never litter.	10	5	0
10.I recycle paper, plastic and glass.	10	5	0
11.I use tree-free paper before paper made from recycled wood pulp paper.	10	5	0
12.I use recycled paper before new paper.	10	5	0
13.So long as they still work, I reuse my school supplies, like binders and pencil crayons, from year to year.	10	5	0
14.When I bring a lunch to school it is packed only in reusable containers so I do not have to throw out - or even recycle - anything when I am done.	10	5	0
15.I will rethink if I really need something before I buy it.	10	5	0
16.I research ways to conserve.	10	5	0

17.I repair things instead of throwing them out.	10	5	0
18.I put things in the recycling box that belong there.	10	5	0
19.I look at labels on containers.	10	5	0
20.I research companies that reduce, recycle and reuse.	10	5	0
21.I research things that can harm the environment.	10	5	0
22.I pick up litter in my yard or on the street.	10	5	0
23.I encourage others to rethink the 5Rs	10	5	0
24.I think about the things that shouldn't go down the drain or in the soil.	10	5	0
25.I help the recycling program at school.	10	5	0
26.I use the recycling box at home.	10	5	0
27.I help my family think about our environment.	10	5	0
28.I don't buy products that harm our planet.	10	5	0
29.I feed a garden with proper scraps.	10	5	0
30.I think of ways to conserve.	10	5	0
31.I refuse to buy a product with a lot of extra packaging.	10	5	0

0-75	76-155	156-225	226-310
DANGER	WARNING	CAUTION	ENVIRONMENTALLY CARING

Experiment – Renewable and Non-renewable Resources

Most of the damage we humans are doing to our environment is due to our overuse and misuse of energy resources. We *do* need to get some energy from somewhere...but which ways are best? The following experiment will give you an idea.

Part A

Materials (per group of 2-5):

1 veggie dog cube per student
toothpicks
1 small candle (a birthday candle will do)

Method:

1) Put each wiener cube on a toothpick.
2) When your group's candle is lit, cook each dog for one minute or until the flame goes out.

Observation:

1) How many veggie dog cubes were cooked by the candle?
2) How hot were they? (warm, hot or very hot)
3) Can the candle be used again? Why or why not?

Part B

Materials (per group of 2-5):

1 veggie dog cube per student
toothpicks
1 large magnifying glass
1 glass or metallic cooking or baking dish

Method:

1) Set cooking surface near a sunlight area.
2) Put one veggie cube on the cooking surface.
3) Focus the bright dot of light from the magnifying glass on the wiener cube.
4) Cook each dog for one minute.
5) Use the toothpick to pick the veggie dog up once its cooking period is done.

Observation:

1) How many veggie dog cubes were cooked by the sun?
2) How hot were they?
3) Can the magnifying glass and the sunlight be reused? Why or why not?
4) Can you cook wieners this way in your kitchen? at night?

Conclusion:

Using your observations and any other research you've done on natural resources, list the advantages and disadvantages of the candle and the sunlight as sources of heat for cooking.

Classroom Discussion Topics

1. What could we have done today to reduce the amount of waste – garbage and recycling we produce?
2. What can we do tomorrow to reduce the amount of waste we produce?
3. Observe the characteristics of a local environment. Who lives there? What do they eat? Who eats them? How do they benefit or harm their surroundings?
4. What can we do at our school that will benefit our environment? Do we already Reduce, Reuse, Recycle, Refuse and Respect? In what ways?

Debate Topics

1. There should be laws limiting each family to a maximum of one car.
2. Young people can influence the actions of big companies choosing to damage our environment.
3. There should be laws limiting the amount of garbage a family produces.
4. Every person should have to plant 30 trees in their lifetime to replenish what they have used.

Out of their peels and into...

When we eat fresh fruits and vegetables, they come to us as they grew : in their own packaging. When we drink the juices that come from our favorite fruits (and sometimes vegetables!) we get many of the same vitamins that are found in the fresh versions, but we also get their new containers. We've taken them out of the peels and skins that Nature gave them and put them into plastics, papers, glass and foil.

- Make a list of different types of juice containers. Show examples when possible.
- Divide students into as many groups as are containers on the list. Each group is assigned a container to research.
  - What are the advantages and disadvantages of this type of container?
  - Think of as many ways as you can to reuse this container.
  - Research the company who made this container.
  - Write a letter to the company and ask if the container was made using the least amount of materials and energy possible.

The ENVIRO-REPORTER

Work in small groups to investigate your school's green practices. Write an article in response to each of the following questions.

1) Do we buy tree-free or recycled paper?
   if no...Find out how to purchase tree-free or recycled paper instead and pass the information on to your school office. Is the tree-free or recycled paper more expensive to buy? If it is more expensive, would using the paper more wisely reduce the amount you have to buy?
   if yes...Report on where it comes from: Is it made from flax, hemp, cotton, rice or something else?

2) Do we have a recycling program?
   if no...Find out how to start one and get involved.
   if yes...Report on how it works: Who runs it? What types of materials are recycled?

3) Do we compost?
   if no...Find out how to start one and do.
   if yes...Report on how it works: Who runs it? What types of material are composted?

4) Do our students pack good lunches?
   Make a checklist of some of the key things to look for in an enviro-friendly lunch. Pick one or more days to survey the lunches of as many students – and teachers- you can. Report on your findings. Your checklist might include things like reusable vs. disposable packaging and utensils, cloth napkins instead of paper, foods low in saturated fats and sugar instead of foods made and packaged in factories. Here's a hint: if it's individually wrapped.....it's TROUBLE!

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