The Right to a Clean Environment

Lesson Plan: You, Your Stuff, and the Environment

Grade Level: 8-12

The Advocates FOR HUMAN RIGHTS

The Advocates for Human Rights
330 Second Avenue South, #800
Minneapolis, MN 55401, USA

For further information, visit
www.theadvocatesforhumanrights.org

Lesson Plan:
You, Your Stuff, and the Environment

Goal: To help students understand their right to a clean environment and how corporations and the United States are doing in fulfilling those rights

Objectives:

- Students will gain an understanding of their fundamental right to a clean environment and how their actions impact that right.
- Students will explore the environmental impact of manufacturing products.
- Students will research and portray an understanding of the environmental impact of certain consumer technologies.
- Students will reflect how consumerism affects their personal lives and whether they bear responsibility to limit these effects.

Time Frame: 2-3 class periods

Grade Level: 8th-12th grade

Resources:

- *Handout: How Paper is Made*
- *Handout: Article: "Montana's right to a Clean & Healthful Environment."* Also available at *http://meic.org/issues/constitution-of-montana-and-mepa/clean-healthful-environment/*
- Copy of your state's Constitution
- Paper
- Blackboard/White Board
- Resources describing the environmental effects of technology and consumerism (periodicals, technology textbooks, library references, computers with Internet access)
- Markers/colored pencils (enough for students to share)
- Poster board

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Procedure:

ACTIVITY 1: WHERE DOES OUR "STUFF" COME FROM?

1. **Journal.** Upon entering class, ask students to take out a single sheet of paper. Using that sheet, have the students write down answers to the following questions:

   - How do you think this paper was made?
   - From what raw materials is it composed?
   - What types of machines are used to harvest those materials?
   - What effects do you think these machines might have on the environment?
   - What other environmental impacts might there be in the manufacture of white paper? What do you think will happen to the paper when you are done with it?
   - What environmental impacts could be associated with the disposal of this piece of paper? What would be a responsible way to dispose of it?"

   To learn more about how paper is made and the impact industrial papermaking has on the environment, check out the resources on PaperCutz here: *http://papercutz.planetark.org/paper/impact.cfm*.

2. **Discuss.** After a few minutes, allow students to share their responses and discuss the following:

   - What is generally meant by the term "environmental impact"?
   - What are some examples of common environmental impacts?
   - What are the environmental impacts associated with a particular item's manufacture, use, or disposal?

ACTIVITY 2: HOW DOES WHAT WE PRODUCE IMPACT US?

1. **Research/Brainstorm.** Ask students to brainstorm a list of consumer items that have a significant environmental impact and write the list on the board. Teachers can choose to have students brainstorm on their own or with access to the internet and library resources. Examples include: computer chips, CDs, cell phone batteries, surfboards, all-terrain vehicles, and motor boats.

2. **Create a poster.** Divide students into small groups and assign each group one of the items on the list. Using all available resources, ask students to investigate the various environmental impacts associated with the product they chose. Have each group create a presentation poster that summarizes their findings and addresses the following:

   Questions for Environmental Impact Poster:

   - Where is the greatest environmental impact - in the manufacturing, use or disposal of this product? On a scale of one to 10, how would you rate the impact at each phase of the product's life?
   - What substances or emissions associated with this product are the most harmful to the environment? How are these substances or emissions released into the environment?
   - Is the impact "local" or "global"? [Local environmental impacts include the loss or alteration of habitat, the release of wastes that have a direct toxic effect on plants and animals, or the release of wastes that alters an ecosystem. Global impacts include global warming or the depletion of resources, such as groundwater or the breathable atmosphere (by consuming a resource at a rate greater than it is replenished or by contamination of a resource).] Explain each local and global impact associated with this product.

   In addition to the answers to the questions, encourage students to illustrate their findings with drawings, diagrams, and photographs.

3. **Hold a summit.** Allow students to hold an "environmental summit" to present their posters and discuss ways they might limit the environmental impacts of product consumption. The summit can either be limited to the classroom, or include a broader audience such as other classes, to the community, or at a school assembly. At the "summit," participants should discuss the following questions:

   - Should environmental impact be considered in an assessment of the "quality" of any new product? Why or why not?
   - How vital to our lives are the types of products investigated?
   - Have the environmental impacts you discovered persuaded you not to buy these items?
   - Do you think manufacturers should pursue alternatives to these products? Why or why not?

ACTIVITY 3: WHEN IT COMES TO OUR ENVIRONMENT, WHAT ARE OUR RIGHTS?

1. **Read and Analyze.** Have students read the article "Montana's right to a Clean & Healthful Environment" available for download here: *http://meic.org/issues/constitution-of-montana-and-mepa/clean-healthful-environment/* (also provided as a handout to this lesson). In small groups, ask students to summarize the main ideas in the article.

2. **Environmental Rights in Your State.** As a class discuss whether or not the student's think their state has a similar constitutional amendment. Do they it is something that is important or necessary? Provide students with the concrete evidence (with a copy of their state's Constitution) as to whether or not their state recognizes their right to a clean environment. Discuss the following questions:

   - What has been done and what needs to be done in your community or state to increase awareness about the individuals' right to clean environment?
   - How does the State's awareness and recognition of its environmental hazards impact your personal health?
   - If arsenic-tainted water, like that stated in the article, finds its way into your drinking water or irrigation channels, what health impacts could that have?
   - What impact would that poisonous water have on the future of the company polluting the environment, like the gold mining company in Montana?

3. **Reflect.** Ask students to respond in writing to the following: *"Based on the research you conducted in class, reflect on how the environmental impacts you identified in class affect your personal life. Are there environmental impacts on your local environment and community? If so, identify them. If not, what locales are instead affected? How can your personal actions reduce environmental impacts? Do you think you have a responsibility to do so? Do you think you have the right to a clean environment, protected by the government? Why or why not?"*

Handout: How Paper is Made

How Paper is Made

Paper. It is all around us. We use it every day. But have you ever asked how it is made?

Paper Production and Use
Approximately five percent of the trees felled by the forestry industry are used to make paper. The wood is chipped, then goes through a complex process of soaking, "cooking", washing, bleaching, refining, drying, and pressing to produce different grades of paper. Worldwide, about 300 million metric tons of paper and paperboard are produced each year. The United States alone produces about 87 million metric tons of paper and cardboard, representing nearly one-third of the world's total production. Every year, Americans use more than 90 million tons of paper. That's an average of over 300 kilograms of paper products per person each year. Every year in America, more than 2 billion books, 350 million magazines, and 24 billion newspapers are published.

Environmental Impact
Historically pulp and paper production has ranked among the most resource-intensive and highly polluting of all manufacturing industries. Besides fibre, the primary inputs into the paper making process are water, energy and chemicals. In the United States, the paper industry is the largest user per tonne of product of industrial process water (U.S. EPA 2002) and the third largest industrial consumer of energy (U.S. DOE). Also, papermaking is a very chemically intensive process. The pulp and paper industry ranks fourth among industrial sectors in emissions of Toxics Release Inventory (TRI) chemicals to water, and third in such releases to air.

Paper's impact on the environment continues even after it has been thrown away. As at early 2008 in the United States, paper and paperboard accounted for the largest portion (34%) of the municipal waste stream, and 25% of discards after recovery of materials for recycling and composting. The problem with all this paper being thrown away is not just about landfill space. Once in a landfill, paper has the potential to decompose and produce methane, a greenhouse gas with 21 times the heat-trapping power of carbon dioxide (UNEP).

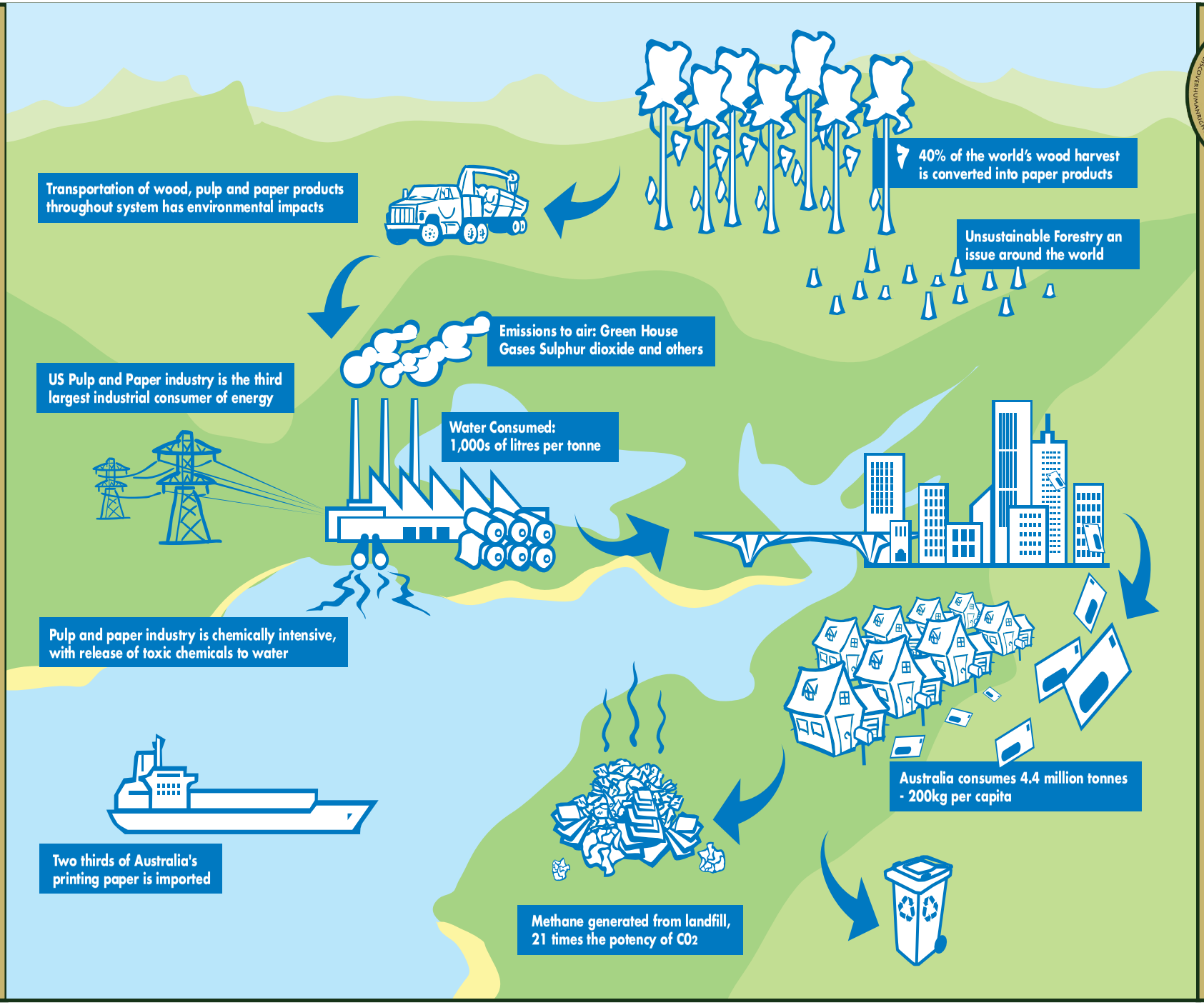
Finally, transportation throughout the system also has significant environmental impacts. Harvested trees or recovered paper are transported to pulp mills, rolls of paper are transported to converters, and finished paper products are transported to wholesale distributors and then on to their retail point of sale. Transportation at each of these stages consumes energy and results in greenhouse gas emissions.

For a visual representation of the environmental impact of paper production see the illustration on page 7.

Reducing Impact
Paper recycling is proving to be successful in reducing the number of trees used worldwide for paper production. Depending on the type and grade of paper produced, paper can be recycled up to seven times before becoming unusable. In addition, there is a strong drive to improve the impact of the pulp and paper industry upon the environment. This includes moves to sustainable forest management with Forestry Stewardship Certification and removal of harmful bleaching technologies.

Sources: TKI Online Learning Center *http://www.tki.org.nz/r/hot_topics/paper_e.php* and "The Environmental Impact of Paper Production." Papercutz: PlanetArk. 2008. *http://papercutz.planetark.org/paper/impact.cfm*

Handout: How Paper is Made



Source: "The Environmental Impact of Paper Production." Papercutz: PlanetArk. 2008. *http://papercutz.planetark.org/paper/impact.cfm*

Handout: *Montana's Rights to a Clean and Healthful Environment*

Montana's Right to a Clean and Healthful Environment

Montana Environmental Information Center
http://meic.org/issues/constitution-of-montana-and-mepa/clean-healthful-environment/

In a 1999 landmark decision, MEIC v. Montana DEQ, the Montana Supreme Court ruled unanimously that Montanans' constitutional right to a clean and healthful environment (Article IX, Section 1) is a fundamental right and one that is intended to be preventative in nature.

The sweeping decision responded to an appeal filed by MEIC and Women's Voices for the Earth (WVE) of a 1996 decision by State district judge Jeffrey Sherlock of Helena. The original suit was filed because the Montana Department of Environmental Quality had allowed the Seven-Up Pete Joint Venture to pump, without any treatment, millions of gallons of arsenic-tainted water into the Landers Fork and Blackfoot Rivers. MEIC and WVE claimed that the discharges violated the Constitution's right to a clean and healthful environment, and that the exemption was unconstitutional.

In an opinion by Justice Trieweiler, the Montana Supreme Court held that: "Our constitution does not require that dead fish float on the surface of our state's rivers and streams before its farsighted environmental protections can be invoked," and concluded that "the delegates' intention was to provide language and protections which are both anticipatory and preventative," establishing that the right is preventative in nature. The Supreme Court returned the case to Sherlock for him to apply the constitutional provisions correctly.

The original case stemmed from DEQ's action in allowing the Seven-Up Pete Joint Venture to pump water during 1995 out of three deep wells just north of the proposed mine site eight miles east of Lincoln. The water was pumped into shallow pits — called infiltration galleries — dug next to both the Landers Fork and Blackfoot Rivers. The water then drained down through the gravelly soil and into the rivers. The suit was brought in October 1995. DEQ authorized another season of pumping in 1996, at which time the groups unsuccessfully attempted to get Sherlock to stop the pump tests until he had ruled on the original case. He denied the request for an injunction, but allowed the suit to proceed. He ultimately dismissed the suit, saying he could not decide the constitutionality of the law unless the groups showed that environmental damage had occurred. They had not made that showing, he said.

Tests at the wells showed arsenic concentrations of 36 to 55 parts per billion, far above the State standard of 18 ppb. And the 18 ppb standard was the result of a 1,000 fold weakening of the previous standard by the 1995 legislature. In addition, the water contained iron, zinc, and manganese in excess of State standards.

The 1995 legislature also passed Senate Bill 331, which included two blanket exemptions from the State's non-degradation policy. One said that any water discharge resulting from mining exploration activities was, by definition, nonsignificant and therefore exempt from any review under the non-degradation policy. The other exemption said that any water discharge resulting from pump tests of wells was also, by definition, nonsignificant and exempt from any review, as long as the water pumped out of the ground was not altered in any way before it was discharged.

The law did say that this pumping could only take place if the receiving water did not, as a result, exceed State standards. However, receiving waters never exceed State standards because DEQ always grants a mixing zone (an area where concentrations of pollutants are allowed to exceed standards) to the discharger which is always large enough that the standards are not violated at its downstream edge where compliance measurements are taken.

The Supreme Court's ruling ultimately says that blanket exemptions such as these are unconstitutional unless the State can show a compelling State interest for granting such exemptions. It may well mean that mixing zones are similarly unconstitutional.