

## 11. Connecting to the Everyday Things in Our Lives

**Source:** Adapted from *Stuff: the secret lives of everyday things* and a workshop resource written by Elise Houghton. See Resources.

### Description

Students should be encouraged to recognize the economic, social and environmental costs and benefits of the goods they consume. This activity provides students with a perspective from which to explore the connections between certain products that they use or have and their social and environmental impacts. Following this exploration, students can create skits to demonstrate the true impacts of items used in their daily lives and suggest possible alternatives. Or they may want to create a board game that highlights the invisible impacts of consuming certain goods and makes visible some positive alternatives that they as students can choose.

### Background Information

The materials we consume are produced from the Earth's limited resources. Few realize the true extent of the impacts of consumption because they are invisible to the consumer. Since we are disconnected from the production of the goods we use in our everyday lives, we don't realize the social and environmental costs of our consumption. Before any products get to us, energy is used, fossil fuels are burned, pollution and waste are created. By examining the "secret lives" of products before they get to the consumer, we can expose the often complex and wasteful processes that bring us the things that we buy.

### Materials

- ▶ "Stuff" resource sheets (coffee, T-shirt, french fries, running shoes, and newspaper: Appendix E)
- ▶ blackboard
- ▶ cue cards (for Jeopardy game)

### Time Allotment

Introduction: 5 minutes

Initial group work: 15-20 minutes

Option A (research and Jeopardy game): 30 minutes

Option B (practice and performances): 30 minutes

Discussion: 5 minutes

## Teaching/Learning Strategies

1. Brainstorm with students the secret life of something in the classroom (e.g., a piece of paper). Attempt to list all the stages of production and the ingredients that go into a product and pinpoint as many of the environmental and social benefits and costs of each stage as you can. The object of this brainstorming session is not to prove how much the class knows, but rather to highlight the things we don't know, or think about. Encourage students to guess – since none of us is likely to have much knowledge, we need to pool and share the bits we may have!
2. Tell students they will become experts on the secret lives of five 'consumables' in their daily lives. Their goal is to make connections between the production of these objects and their social and environmental costs and benefits.
3. Break students into ten groups and hand out information sheets on the objects from our everyday lives for each group (two groups for each of the five items).
4. Ask students to read about and discuss the costs and benefits of their object and identify the most unexpected costs and benefits. What are the alternatives?

## Option A

1. Explain the rules of Jeopardy (each category has questions of increasing difficulty, and the questions are actually answers; however, consider using the Jeopardy format for multiple choice questions to increase the chances that students can answer questions).
2. Ask students to take their findings and create a category for a class-wide Jeopardy game for their object. On cue cards create 5 answers under the title of your item. Assign each question a value (100, 200, 300, 400, 500) which relates to its difficulty. Each group can create a bonus question that addresses environmentally-friendly alternatives.

## Option B

1. Ask students to take their findings and create commercials that uncover the secret lives of their objects. Encourage students to also include environmentally-friendly alternatives.
2. Allow each group to perform its commercial for the class and take questions about its object.

## Follow-up Discussion Questions

- ▶ How do our daily decisions connect with social and environmental impacts?
- ▶ What choices do we have to avoid these impacts?
- ▶ Why would anyone choose more environmentally-friendly alternatives?
- ▶ Why don't more people make environmentally-friendly decisions in their lives?

## Extensions for additional classroom projects/activities

- ▶ Develop a research project to map the secret lives of everyday school items and favourite foods. What went into producing them? Where did all the ingredients come from?
- ▶ Create an information campaign within your school to inform students about the secret lives of everyday things.
- ▶ Write to local politicians to inform them of the secret day lives of everyday things.

## Curriculum Connections: Clustering of Expectations

### GRADE 7 : GEOGRAPHY (2005)

- 7g40 • describe positive and negative ways in which human activity can affect resource sustainability and the health of the environment
- 7g41 • describe a variety of ways in which people use and manage renewable, non-renewable, and flow resources to meet their needs

### GRADE 7: SCIENCE & TECHNOLOGY—Interactions in the Environment (2007)

- OE 1 assess the impacts of human activities and technologies on the environment, and evaluate ways of controlling these impacts
- 1.1 assess the impact of selected technologies on the environment

### GRADE 8: SCIENCE & TECHNOLOGY—Systems in Action (2007)

- OE 1 assess the personal, social and/or environmental impacts of a system and evaluate improvements to a system and/or alternative ways of meeting the same needs
- 1.2 assess the impact on individuals, society and the environment of alternative ways of meeting needs that are currently met by existing systems, taking different points of view into consideration

### GRADE 8: SCIENCE & TECHNOLOGY—Fluids (2007)

- 1.1 Assess the social, economic and environmental impacts of selected technologies that are based on the properties of fluids

## Appendix E *Stuff Resource Sheets: Coffee* (from Colombia)

Source: Adapted from *Stuff: the secret lives of everyday things*. See Resources section.

All figures are 1997 (or earlier) statistics.

- ▶ Colombia occupies 1% of the Earth's surface, but has 18% of the Earth's species and more bird types than any other nation.
- ▶ Coffee formerly grew in the shade under a canopy of fruit and hardwood trees. But in the 1980s high-yield varieties of seed were introduced. Farmers cut down the trees to grow these varieties. The results:
  - ▶ increased coffee yields
  - ▶ increased soil erosion
  - ▶ large decrease in bird populations
  - ▶ increase in pests that birds formerly ate
  - ▶ increased use of pesticides.
- ▶ Two pounds of coffee berry pulp are dumped in rivers for every pound of beans gathered.
- ▶ Beans are shipped to the US for roasting and packing (CO<sub>2</sub>).
- ▶ Beans are roasted for 13 minutes at 400 °F. (using natural gas from Texas - more CO<sub>2</sub>).
- ▶ Coffee packaging is made of polyethylene, nylon, aluminum foil and polyester (not recycled, difficult to biodegrade).
- ▶ Shipped to wholesalers in trucks which get 3 km. to a litre of gas (more CO<sub>2</sub>)
- ▶ Bringing coffee home: driving, plastic bag (more CO<sub>2</sub>)
- ▶ Making coffee involves: grinding, water, heating water, washing, coffee filter (paper, trees, bleaching, transportation)
- ▶ **Sugar fact:** sugar cane in Florida is grown in fields that were marshes. Since draining these marshes, populations of all vertebrates, from turtles to storks, have fallen 75 to 95% in Everglades National Park. In 1995, the state of Florida voted against taxing sugar growers as an income source to help restore the Everglades.
- ▶ **Cream:** impact on land (grain farms) and water resources resulting from raising cattle

### What Are Some Environmentally-Friendly Choices?

- ▶ Consider shade grown coffee (preserves local trees and habitat), organic coffee (avoids use of chemicals), fair trade coffee that pays coffee workers well, use organic milk from cows fed on organic grain (no chemicals used)
- ▶ Ask your favourite coffee shop if it knows about organic coffee, or fair-trade coffee. Customers can have a huge influence on the companies they buy from – *if they choose to exert it through where they spend their money.*

# Stuff Resource Sheets: Running Shoes

Source: Adapted from *Stuff: the secret lives of everyday things*. See Resources section. All figures are 1997 (or earlier) statistics.

- ▶ A quote from an L.A. Gear executive: “If you’re talking performance shoes, you only need one or two pairs. If you’re talking fashion, you need endless pairs.”
- ▶ Americans spend twice as much on children’s shoes as they do on books.
- ▶ Brand name running shoes are manufactured under contract in unknown factories in third-world countries.
- ▶ All the pieces that are put together to make the shoe are manufactured elsewhere.
- ▶ Only the design and the marketing are done by the branded companies we all recognize.
- ▶ Shoe companies move their operations to favour countries with lowest-paid employees and least-enforced (or non-existent) environmental regulations (governments there comply with this).
- ▶ Running shoes are made of:
  - ▶ cow leather from the US, tanned using 20 chemical processes. Some of these processes use petroleum-based chemicals: including ethylene, a toxic gas, produced from Saudi petroleum in Korea
  - ▶ rubber: synthetic rubber made of Saudi petroleum and benzene made from coal in a factory in Taiwan
- ▶ Working conditions in countries favoured by American shoe marketers tend to have low labour standards. Indonesian workers are paid US \$.23 a day to make \$75 dollar running shoes which can cost the manufacturer as little as \$4.25 a pair to make.
- ▶ Shoebox production has improved in both cardboard quality and content (more recycled materials) and elimination of glue from box design. Boxes are shipped to Asia for packing.
- ▶ Shoes are shipped back to the US: the trip takes 3 weeks!
- ▶ Many products are designed and made to last only a short time to encourage frequent consumption.

## What Are Some Environmentally-Friendly Choices?

- ▶ Favour manufacturing of items from countries where workers are fairly paid (better-paid people are often able to take better care of their own environments)
- ▶ Look for anything manufactured locally – note the prices!
- ▶ Buy sturdy shoes that last rather than many pairs of running shoes: buying longer-lasting good-quality items less often saves resources, and is an environmental investment

# Stuff Resource Sheets: A T-Shirt

Source: Adapted from *Stuff: the secret lives of everyday things*. See Resources section. All figures are 1997 (or earlier) statistics.

- ▶ A half-cotton, half-polyester T-shirt weighs about 4 ounces. Cotton is grown in the United States; polyester is made from petrochemicals that come from oil.
- ▶ Oil refining: Crude oil is heated to 750° F. Heavy tars evaporate, heavy hydrocarbons are drawn off to become waxes and lubricants, and after several more rounds of processing lighter compounds become raw materials for petrochemicals – which polyester is made of (CO<sub>2</sub> emissions from all these processes contribute to climate change).
- ▶ Making the polyester for a T-shirt releases carbon dioxide, nitrogen and sulfur oxides, hydrocarbons, particulates (fine particles), carbon monoxide and heavy metals.
- ▶ Oil refining pumps more tons of pollution into the air than any other US industry except steelmaking.
- ▶ Cotton grown in Mississippi requires that soil be treated with aldicarb, one of the most toxic pesticides used in the US. Some goes into the soil, some into the water. Cotton seed is dipped in fungicides before it is planted in the ground.
- ▶ Cotton accounts for 10% of the world's annual pesticide consumption.
- ▶ It takes five years of rest from pesticides before healthy populations of earthworms return to soil used for growing cotton.
- ▶ Cotton is among the world's most heavily irrigated crops (heavy water consumption).
- ▶ Cotton is picked by a large mechanical cotton “stripper” that burns diesel fuel.
- ▶ Cotton fibres are cleaned, carded, blended with the polyester fibres, and spun into yarn.
- ▶ Fabric is spun and dyed and then washed with industrial chemicals including chlorine, chromium and formaldehyde. One-third of cotton dye washes into local waterways. Textile dyes are regulated by the US Environmental Protection Agency as hazardous substances.
- ▶ Sewing: Fabric is shipped to countries such as Honduras, where women make \$.30 US an hour making garments. It might be packed onto a sheet of pinewood cardboard, wrapped in a polyethylene bag from Mexico and packed in a corrugated box from Maine.
- ▶ Other resource use: detergent, electricity for washing machines, chlorine bleach for stain removal, waste water into local water systems, electricity for drying.
- ▶ The greatest environmental impacts of your T-shirt happen in doing your laundry: washing and drying the shirt uses 1/10 of the energy of manufacturing it. The majority of solid waste in the shirt's life is sewage sludge and detergent packaging.

## What Are Some Environmentally-Friendly Choices?

- ▶ Look for organic cotton (it's hard to find, and it's expensive!)
- ▶ If you can't afford organic, buy things thoughtfully and only what you need: everything you buy has an effect on the environment (which has an effect on YOU!)
- ▶ Wash only full loads of clothes to save water, hydro
- ▶ Support groups making agriculture more sustainable by buying their products

# Stuff Resource Sheets: Newspaper

Source: Adapted from *Stuff: the secret lives of everyday things*. See Resources section. All figures are 1997 (or earlier) statistics.

- ▶ An average (weekday) paper is 220 grams of newsprint covered with 2 grams of petroleum and soybean-based inks.
- ▶ Half of newsprint is made of recycled paper, half from new trees
- ▶ Canada is the world's leading newsprint producer; BC alone produces 5% of the world total!
- ▶ A lot of newsprint is made from 150 year-old spruce and pine trees.
- ▶ Although logging companies often complain about environmentalists causing unemployment in the logging industry, it is increased efficiency in cutting and processing equipment which has made the number of timber industry jobs in BC fall by 1/3 as the volume of wood cut increased 16%.
- ▶ Clearcutting of wildlands (removing every tree) accounts for 90% of logging in British Columbia. Some clearcuts are so large they can be seen from space.
- ▶ The Fraser River in BC is the world's largest producer of salmon, but logging, road building and other disturbances in the watershed have contributed to an 80% decline in salmon in the past century.
- ▶ Half of each log is converted into lumber: the rest becomes wood chips and sawdust
- ▶ To prevent yellowing, the pulp is now bleached with hydrogen peroxide.
- (This is preferable to chlorine which produces toxic by-products in waterways)
- ▶ Five percent of the paper in newsprint is kraft paper, with longer, stronger fibers. Kraft paper is made from 300-year-old western red cedar and hemlock trees. (Kraft means "strong" in German.)
- ▶ Woodchips are cooked in a soup of caustic soda and sodium sulphide (not especially toxic, but smelly!) for 12 hours.
- ▶ Kraft paper is bleached with chlorine dioxide, which creates dangerous by-products. Pulp mills have made efforts to reduce their use of chlorine, and they have reduced their emissions by 85% from 1990 to 1993 (consumers and environmentalists have helped by demanding chlorine-free products!).
- ▶ European demand for Canadian chlorine-free paper has led to chlorine-free paper production in Canadian mills. But they still produce chlorine-bleached paper for US markets where consumers are less informed or more indifferent.
- ▶ Replanting trees helps, but not if they are logged again in 60 years; they do not replace the carbon-capturing function of 300-year-old trees.
- ▶ Black ink is made from petroleum-based resins and oil, and some carbon from oil; coloured ink is made from soybean oil with some petrochemical pigments added.

## What Are Some Environmentally-Friendly Choices?

- ▶ Share newspapers
- ▶ Insist on chlorine bleach-free paper products

# Stuff Resource Sheets: French Fries

Source: Adapted from *Stuff: the secret lives of everyday things*. See Resources section.  
All figures are 1997 (or earlier) statistics.

- ▶ One serving of french fries takes about one 10-ounce potato, sliced into uniform strips.
- ▶ In a 150-day growing season, potatoes require over 30 litres of water to a 12 cm plot of ground
- ▶ In BC, the Snake River valley and the Columbia River basin produce potatoes for 80% of US french fries. (Huge amount of water taken for irrigation.)
- ▶ 80% of the Snake River's streamside habitat is gone, replaced by reservoirs and irrigation systems.
- ▶ Potatoes are treated with fertilizers and pesticides to ensure that their shape and quality are consistent. The chemicals account for 38% of a farmer's expenses.
- ▶ Much of the nitrogen from fertilizer sinks into the groundwater; combined with concentrated salts from irrigation water, it can make water unfit even for irrigation.
- ▶ Pesticides include Telone II (toxic to mammals and probably birds) and Sevin XLR Plus (highly toxic to fish). The US Environmental Protection Agency found contaminants in every tributary of the Columbia River Basin.
- ▶ Potatoes are dug up with diesel-fueled harvesters (producing the greenhouse gas carbon dioxide) and trucked to a processing plant.
- ▶ Processing one potato used 2/3 of a gallon (about 3 litres) of waste-water.
- ▶ French fries are frozen after processing: freezing foods can require more than 10 times as much energy as their fresh equivalents.
- ▶ In 1960 Americans ate 92% of their potatoes fresh; by 1990 Americans ate more frozen potatoes (mostly fries) than fresh ones.
- ▶ An improvement: refrigerators now use hydrofluorocarbons for coolants instead of the chlorofluorocarbons (CFCs) which destroy the ozone layer. But escaped hydrofluorocarbons still contribute to the "greenhouse effect."
- ▶ Refrigerated trucks (producing carbon dioxide and using hydrofluorocarbons) carry frozen potatoes to distributors and to retail outlets.

## What Are Some Environmentally-Friendly Choices?

- ▶ At home: buy fresh potatoes instead of frozen ones – they use less energy during their product lives.
- ▶ Learn more about North American agriculture and make purchases based on what you think is most environmentally-friendly (look for Canadian food products – the more local the better!)
- ▶ Look for – and invest in – organic potatoes sometime when you food shop: you'll be encouraging a much healthier form of agriculture.