

## Lesson #19: Waste: Manitoba E-Waste – Whose Waste?

<b>Stage 1 – Desired Results</b>	
<b>Established Goals:</b> How do scientific and <b>technological</b> developments, past and present, impact <b>individuals</b> , societies and the environment ( <b>locally</b> /globally)?	
Understandings: Students will understand that...1. Waste is everyone's shared problem 2. Science plays a vital and essential role in addressing sustainability issues	Essential Questions: <b>SLO B1:</b> How do scientific and technological developments, past and present, impact individuals, societies and the environment (locally/globally) ?
Students will know...1. What is being done with e-waste at a local level and how it relates to what they have been learning in this unit	Students will be able to...1. Discuss issues related to e-waste
<b>Stage 2- Assessment Evidence</b>	
Knowledge: 1. Assess "Relevance to today..." from the Issue-Based Article Analysis	Skills: 1. Have students research/ discuss a related issue that Green Manitoba is working on (such as tires)
<b>Materials Required</b>	
Teacher Reading: "Discussion Paper E-Waste Stewardship Program" (entire document) for reference ( <b>Source: <a href="http://www.greenmanitoba.ca/cim/dbf/EwasteDiscPaper.pdf?im_id=30&amp;si_id=1001">http://www.greenmanitoba.ca/cim/dbf/EwasteDiscPaper.pdf?im_id=30&amp;si_id=1001</a></b> ) Powerpoint Presentation "Examining Our Mental Models" HANDOUTS: 1. "Discussion Paper E-Waste Stewardship Program" Energy, Science and Technology, Green Manitoba Eco Solutions in October, 2005. 2. Fact-Based Article Analysis ( <b>Source: Manitoba Education and Training. (1997). Senior Years Science Teacher Handbook. Manitoba: Manitoba. (p. 11.30, 11.40)</b> ) 3. "Manitoba E-Waste –Who's Waste?" ( <b>Source: Winnipeg Free Press "E-Waste Plan Crashes", Winnipeg Free Press, Saturday, October 7, 2006.</b> )	
<ol style="list-style-type: none"> <li>1. INTRODUCE brief essential background information on the discussion paper that Green Manitoba authored* (pages 1-9)</li> <li>2. DIRECT students to read the excerpt and complete a 'Fact-Based Analysis Frame' on pages 10-13**</li> <li>3. DISCUSS the section on "Importance"</li> <li>4. Assign groups of students to read and report back on what each of the following regions are doing about e-waste a) Alberta b) Ontario c) United States</li> <li>5. DIVIDE class into groups to discuss who they think is responsible for each item on the list. Ensure that the students are aware of what is meant by manufacturers, retailers, consumers, municipal authorities, non-government agencies (NGO's), Green Manitoba (government agency).</li> <li>6. DIRECT students to read the article "E-Waste Plan Crashes" and revisit the chart to see if there are any changes in their opinions.</li> <li>7. DISCUSS as a group: What is the mental model here?            What is the REAL SOURCE of the problem? SUGGEST(if it does not arise naturally) that it is really the fact that lead, cadmium, mercury and brominated flammable retardants are environmental and health risks. In fact, these would not be problems at all if they could be recycled – but they can't. So is this a problem with design? A problem for scientists? Will they be scientists? Is there a need for science in sustainability issues?</li> <li>8. Ideally, students will discuss their ideas with speaker from Green Manitoba (see</li> </ol>	

Longer Term Planning) and hear of the latest developments in this initiative. 9. <b>Slide 42</b> – DIRECT students to complete WASTE Report.
<b>Homework Learning Activities</b>
<b>Extension Learning Activities</b>
Research what the largest source of waste is (it is actually white goods) Prepare a pie graph Check out what these companies are doing with e-waste *Falconbridge, Ltd. in Brampton, Ontario (Noranda Recycling) <a href="http://www.norandarecycling.com/facilities/east_providence.htm">http://www.norandarecycling.com/facilities/east_providence.htm</a> *Matsushita (known for their Panasonic brand) *Research what forms the bulk of the waste (it is actually white goods – see the discussion paper for more detail). Create a pie graph.

**Educator Notes**

\*Green Manitoba (the government agency responsible to lead an enhanced and expanded system for product stewardship, energy, and water conservation, demand-side management, and sustainable transportation

\*\*Though this article does present an issue, the issue-based analysis was not chosen because the authors are merely initiating discussion on the topic and no opinions are given. The article could be analysed using an issue-based analysis.

### Manitoba's E-Waste – Who's Waste?

These questions are adapted from “Specific Questions Related to E-Waste” (page 14) as in the Discussion Paper “E-Waste” Stewardship Program written by Energy, Science and Technology, Green Manitoba Eco Solutions in October, 2005.

1. COPY the following chart into your notebook so that you have enough space to write in each section of the chart.
2. Think about what YOU think should be done about e-waste. What should the role of each of the following groups be in each of the following areas?

	Developing the plan about what to do about e-waste	Collecting e-waste	Processing the parts of the e-waste that cannot be recycled	Recycling the parts of the e-waste that can be recycled	Enforcing the plan about what to do about e-waste
Manufacturers/producers of electronic products					
Retailers					
Consumers					
Municipal Authorities					
Non-government agencies					
Green Manitoba (a government agency)					