# LESSON 4

## PART A:

**Objective:**

Students learn about the **social and environmental** concerns and opportunities involved with the electronics industry regarding the end-of-use stage of a product's life.

**Materials:**

- Internet access for all students or Internet access plus an LCD projector for whole class viewing (preferred).
- Video #1: "Manufactured Landscapes" by Edward Burtynsky (you can probably find this at your local video store). The clip can be found at the following time signature: 23:25-28:38.
- Video #2:
  - i. Younger students:
    Go to http://edition.cnn.com/video/ and search for "Mining for Computer Gold".
  - ii. Older students:
    Go to http://webcast.un.org/ramgen/specialevents/unu-e-waste.rm (from the United Nations University about the UN StEP initiative – Solving the Electronic Waste Problem). Begin film at time signature: 17 minutes.

    **Note:** The accents of the speakers may make this film somewhat difficult for your students to understand. Therefore, **before** you show it:

    a. Preview it on your own.

    b. Explain to your students the general nature of the discussion.

    c. Pre-teach important vocabulary like: "Western countries", "industrialized countries", "multi-stakeholders", "legislation, regulations", "environmental burden".

    d. Post the reflection questions found in Part II of the procedure below.
- Reflection questions on overhead or chalk board
- The completed Life Cycle worksheets from Lesson 3

**Activities:**

**Part I – for video 1:**

1. Show students this clip about the electronics disassembly industry in financially poor countries from the Canadian film, "Manufactured Landscapes" – clip at time signature 23:25-28:38.
2. Ask students to write and/or draw a response to the following:
   a. Brainstorm words and pictures to capture your first impressions of the video.
   b. Picture your home computer and the computers at the school. What are the benefits and drawbacks to having your computers end up at the location shown in the video?
   c. What would you like to see happen to your own personal electronic equipment when you are finished with it?
3. Ask students to add to their personal schematic of the electronics life cycle (from Lesson 3) with ideas generated from the "Manufactured Landscapes" video clip. Invite students to add another piece of paper to the chart if necessary.
4. Ask students to discuss their responses with a partner.

**Part II – for video 2**:
(CNN video or UN StEP initiative video – see note in materials section above)

**CNN video (younger students)**

1. Ask students to get into groups of three to four students to discuss the following questions:
   a. What are two different types of end-of-use initiatives described in the video?
   b. What are some positive things about the initiatives you learned about?
   c. What are some potential problems with the initiatives?
2. Review their discussions as a class.

**OR,**

**UN StEP initiative video (older students)**

1. As a class, discuss the following questions to check for understanding:
   a. What are the goals of the StEP initiative?
   b. What does Klaus think the United Nations can offer to this initiative?
   c. Christian said that we need to consider three different dimensions of the e-waste problem at once. One of the dimensions was the social dimension. What were the other two?
   d. Klaus explains that a recycling program in Sierra Leone may be very different than one in Germany. Why?
2. Ask students to get into groups of three to four students to:
   a. Brainstorm everything they learned from the video.
   b. Discuss the positive things about the initiative.
   c. Discuss potential problems with the initiative.
3. Review their discussions as a class.

**Part III**:

Ask students to add to their personal schematic of the electronics life cycle (from Lesson 3) with ideas generated from both videos. Invite students to add another piece of paper to the chart if necessary.

## PART B:

**Objective:**

Students consolidate their learning about the stages in the life cycle of an electronic product and learn and practice collaboration skills.

**Materials:**

- Easel, chart paper used on one side and markers for outdoor playing (preferred). Chalk/chalkboard for indoor playing.
- This kit with pages marked with sticky notes for quick reference to material for game questions.

**Activities:**

1. Divide students into mixed-ability teams of four.
2. Explain the rules and lead students through the Jeopardy-style trivia game described below:

**Playing**

- In this particular game (**unlike** the television game), students are asked a QUESTION and need to provide an ANSWER.
- The teacher is the host.
- Consider allowing students to have their notes in front of them.
- There is no need to post categories and questions. You may simply ask the questions orally.
- Team 1 is given the first opportunity to answer the first question. If they do not answer correctly, the question passes to each team until a team answers correctly. No matter which team answers that question correctly, new question 2 goes to team 2. This question goes around until one of the teams answers correctly. No matter which team answers that question correctly, new question 3 goes to team 3, and so on.
- The teams discuss the correct answer and help everyone to be prepared to answer (discuss and model what this looks like before play begins). Optional: the teacher chooses the team member that must provide the final answer.
- The class hums a song (perhaps more than once) that indicates that the clock is ticking while the playing team collaborates. Focus on thorough answers rather than speed.

**Scoring**

- For each question, a team has an opportunity to get 20 points: ten points for the correct answer and ten points for collaborating well.
- The decision to award the collaboration points or not is INDEPENDENT of whether or not the correct answer is provided.

**During the Game, Use this Kit to Generate Questions About:**

- Create questions by asking students for one or two examples that relate to different combinations of the following aspects of the life cycle of electronics products:
  - benefits/drawbacks
  - natural environment/human community
  - the different stages in the product's life cycle
  - focusing on near and/or far
  - focusing on now or in the future

  For example, ask students to name two examples of drawbacks that the end-of-use stage of computers may have on human communities far away.
- Energy efficiency questions threaded throughout the guide
- So What? Questions – refer to the students' charts posted around the room. Ask them to respond with a personal answer about why they care about _____?
- Facts from puzzles
- Also ask them about:
  - The 4R hierarchy (from sidebar on page 13)
  - The need to create a market for recyclables (from sidebar on page 29)