

## **e-cycling Service Learning Project- Introductory Lesson**

**Grade Level:** 5

**Subject Area:** English, Technology, Science

**Short Description:** This lesson focuses on the growing problem of e-waste, and a service learning project that involves the students providing a service to their community by accepting and properly disposing or distributing their e-waste. This lesson should take place after students are familiar with recycling and how waste impacts the environment. Students will work in groups of two to produce a presentation with visual aid to convince the administration to allow the students to carry out the project.

### **Standards**

#### **State Curriculum Standards:**

English:

5.1 The student will listen, draw conclusions, and share responses in subject-related group learning activities.

- a) Participate in and contribute to discussions across content areas.
- b) Organize information to present reports of group activities.
- c) Summarize information gathered in group activities.

5.2 The student will use effective nonverbal communication skills.

- a) Maintain eye contact with listeners.
- b) Use gestures to support, accentuate, and dramatize verbal message.
- c) Use facial expressions to support and dramatize verbal message.
- d) Use posture appropriate for communication setting.

5.3 The student will make planned oral presentations.

- a) Determine appropriate content for audience.
- b) Organize content sequentially or around major ideas.
- c) Summarize main points before or after presentation.
- d) Incorporate visual aids to support the presentation.
- e) Use grammatically correct language and specific vocabulary.

5.8 The student will write for a variety of purposes: to describe, to inform, to entertain, and to explain.

- a) Choose planning strategies for various writing purposes.
- b) Organize information.
- c) Demonstrate awareness of intended audience.
- d) Use precise and descriptive vocabulary to create tone and voice.

- e) Vary sentence structure.
- f) Revise writing for clarity.
- g) Use available technology to access information.

5.9 The student will edit writing for correct grammar, capitalization, spelling, punctuation, and sentence structure.

- a) Use plural possessives.
- b) Use adjective and adverb comparisons.
- c) Identify and use interjections.
- d) Use apostrophes in contractions and possessives.
- e) Use quotation marks with dialogue.
- f) Use commas to indicate interrupters and in the salutation and closing of a letter.
- g) Use a hyphen to divide words at the end of a line.
- h) Edit for clausal fragments, run-on sentences, and excessive coordination.

Computer Technology:

3-5.2 The student will demonstrate proficiency in the use of technology.

- a) Use skills and procedures needed to operate various technologies such as scanners, digital cameras and hand-held computers.
- b) Identify basic software applications such as word processing, databases, and spreadsheets.

C/T 3-5.6 The student will use technology to locate, evaluate, and collect information from a variety of sources.

- a) Collect information from a variety of sources.
- b) Evaluate the accuracy of electronic information sources.
- c) Enter data into databases and spreadsheets.

C/T 3-5.8 The student will use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

- a) Produce documents demonstrating the ability to edit, reformat, and integrate various software tools.
- b) Use technology tools for individual and collaborative writing, communication, and publishing activities.
- c) Use telecommunication tools to communicate and share information with others.

### **Instructional Outcomes:**

Students will:

Follow oral and written directions.

Collaborate with a partner.

Produce a presentation, as well as, a visual aid using a technology resource.

### **Enduring Understandings/ Essential Knowledge:**

All students should:

- participate effectively in subject-related group learning activities
- use their organizational skills in preparing, presenting, and summarizing information gathered in group activities
- understand how gestures, facial expressions, posture, and body language affect delivery of the message
- select and organize information when preparing for an oral presentation
- use visual aids when preparing for an oral presentation
- use technology to produce a visual aid
- use technology to help persuade the audience

### **Essential Questions:**

How does our need/want for new technology affect our environment?

Why is it important to reduce e-waste?

Why is it important to choose a responsible recycler to handle e-waste?

### **Procedures**

**Lesson Set:** This lesson should open with a PowerPoint on e-waste. The presentation defines e-waste and describes the amount of electronics that end up in landfills, and the toxins that leach into our environment. The PowerPoint stresses that constant changes in technology drive consumers to buy new electronics, and the low cost to replace electronics versus fixing broken electronics also drives consumers to buy new. The PowerPoint also shows pictures of developing countries where “recycled” electronics are often dumped. Teacher can familiarize themselves with the issue by visiting <http://e-stewards.org/the-e-waste-crisis/> or <http://e-stewards.org/the-e-waste-crisis/exposing-the-crisis/>. The pictures are powerful, yet appropriate for fifth grade. The PowerPoint suggests ways to:

**Reduce:** Schools can purchase refurbished computers for a cheaper cost than new computers, reducing the amount of computers in landfills.

**Reuse:** Government agencies and corporations should donate their computers that are still current technology.

**Recycle:** Everyone should properly dispose of electronics by making sure they are properly recycled. Only use companies that are e-Stewards® Recycler certified or Responsible Recycling Practices for Electronics Recyclers (R2) certified.

**Rationale:** This lesson builds on previous knowledge about recycling and waste, but it specifically deals with e-waste. Their generation has grown up with electronics and understands how quickly electronics become obsolete. These children may have had no idea that electronics should not just be thrown away, and that they have contributed to the e-waste problem themselves.

### **Techniques and Activities:**

Show students the e-waste PowerPoint. Teacher should let students take turns reading the different statistics and facts, and allow student input.

Introduce the e-cycling Service Learning Project. This project will involve the students providing an e-waste drop-off site at the school. The students will then research companies that are e-Stewards® Recycler certified or Responsible Recycling Practices for Electronics Recyclers (R2) certified to send the recyclable items, and research where to donate the usable electronics (See Websites in Resources). The students will also help find the school refurbished equipment and write the school board to convince them that their school wants to do its part to reduce, reuse and recycle, and the needed equipment can be obtained at a lower cost. Students will be keeping track of the amount of electronics they have kept out of landfills, and who benefitted from computer donations. They will reflect on their impact on their school community and global community at the conclusion of the project. The e-cycling Service Learning Project should take at least 3 months, but could last an entire school year.

Let students know that it will be up to them to convince the administration (principal) that this project is worth doing. They will be working in groups of 2 today and tomorrow to produce a presentation that includes some type of visual aid that students utilized technology to produce (PowerPoint, poster, pamphlet, flyer, video, commercial, etc.).

Lead a class “brainstorm session” on the board. Ask students questions like; How will this project benefit our school community? How will this project benefit the global community and environment? This is essentially a review of the PowerPoint they just viewed, but it helps make the connection between the global community and their school community. (This is also a great time to review communication skills such as, eye contact and listening, before getting into groups.)

Separate the students into groups of two. Provide the groups with written directions and rubric before they start.

Students should be directed to brain storm with their partners on this first day. They should decide what type of visual aid they would like to use, and make a list of important points they would like to prove. Students should have at least one hour. Consider doing this the last hour of the day because most students are tired of sitting at their desks and this gives them a chance to get up and socialize.

The next day, students should take approximately 1-1 ½ hours to finish their presentations with their partners.

See Supplemental Activities for activities for early finishers and students needing reinforcements.

Allow students to present. Students will fill out evaluations for the other teams.

**Lesson Closure:** This lesson ends with student presentations. Students will have a worksheet to evaluate other group's presentation on how well they would persuade the principal.

**Assessment/ Evaluation:** Students will be graded on their presentations, and their visual aid. A rubric will be provided before the assignment begins, and given back to students with peer evaluations.

**Student Products:** The groups of two will give a presentation to persuade, using some type of visual aid.

### **Supplemental Activities:**

Early Finisher Activity: Visit <http://awesome.good.is/transparency/web/1010/digital-dump/flat.html>. The graphic "The Digital Dump" shows the increasing number of electronics that are thrown away. Use the information in this chart to construct a bar graph in Microsoft Excel. How many televisions are disposed of and how many are recycled? How many computer products are disposed of and how many are recycled? How many cell phones are disposed of and how many are recycled?

Students needing reinforcement: Visit <http://pbskids.org/loopscoops/electronics.html> Watch the Level Scoops Video on Electronic Gadgets. Also read <http://pbskids.org/loopscoops/about-electronics.html#sect4>. Then, write a paragraph about why recycling electronics is difficult and how you can help.

### **Adaptations for Special Learners:**

Provide written and verbal instructions.

Provide visual aids.

Extend time to complete assignment if needed.

Repeat directions and have students repeat directions back.

## Resources

### Materials:

Examples of electronics (cell phone, VCR, etc.).

Paper

Pencils

### Technology:

Computer for each pair of students.

Microsoft Word, PowerPoint, Excel, Windows Movie Maker, internet connection.

Video Camera(s)

### Web Sites:

<http://e-stewards.org/>

<http://www.epa.gov/osw/conserve/materials/ecycling/donate.htm>

<http://awesome.good.is/transparency/web/1010/digital-dump/flat.html>

<http://pbskids.org/loopscoops/about-electronics.html#sect4>