E-Waste

Your topic is Electronic Waste, also known as E-Waste.

Your committee will present third. Please read through the steps carefully.

Remember your ultimate goal is to reduce waste.

Product: A PowerPoint Presentation

- ✓ **Each committee will present their findings using PowerPoint and YouTube video(s).**
- ✓ **The slides have been prepared for you. You need to fill in the information. Everything in *italics* is to be replaced by your committee.**
- ✓ **If you need more than one video to tell your story, insert a new slide and add the video on that slide.**
- ✓ **You need to know the information on the slides. Use an index card so you face the Summit audience, not the screen.**
- ✓ **You will include bullet points on the last few slides; bullet points should be a few words about your topic. (If you need more room insert a new slide)**
- ✓ **The e-waste presentation will be no less than 10 minutes, and no longer than 20 minutes. (Other committees may have more than one presentation with 10 minutes for each presentation)**

1. Elect a Chairman of your committee. Your Chairman will be in charge of the group's presentation to the rest of the class. This will include delegating parts of the presentation.

Successful Chairing for a Successful Committee

Chairs must be good listeners, good communicators, and good organizers.

Successful Chairs:

✔ Successful group discussions require planning and participation by all:

- •The Chair asks all questions and gets help from their committee.

✔ The Chair's job is to keep all committee members involved by making sure each member:

- • has a country/topic
- • has filled in all of his or her slides
- • listens to the other members' findings
- • joins in on the final committee opinions and solutions (Remember, the 6th grade is focusing on how to reduce, or create less trash)

✔ Praise members' good work in writing and verbally

✔ Maintain a sense of humor

✔ Communicate often. Few people respond to a general invitation; a personal request usually brings faster results.

✔ Check in with members until tasks are accomplished; then praise committee member(s) (privately and publicly) for a job well done.

✔Document all your sources as required by your teacher.

2. Target learning standard: How do biases interfere with critical thinking? Be aware assumptions shape people's thinking.

Understanding the problem on a global scale requires an understanding of differences in cultures around the globe. You must understand community values before you can suggest community solutions.

Be aware assumptions shape people's thinking. Look at your research as facts and try not to develop a conclusion until you are finished researching. How do biases (assumptions) interfere with critical thinking?

PowerPoint directions

#1 Slide - Title

The directions are on the slide. Type in the information needed, and then erase the *italic* directions.

#2 Slide – What is E-Waste

The directions are on the slide. You may need to write down the directions and erase the bottom half of the slide to insert your bullet points. Use the information below to understand and explain what e-waste means.

So What Exactly Is E-Waste?

"If you haven't heard the term "E-waste" before then get prepared for it because you will definitely be hearing a lot about it in the future. Electronic waste is a term that has come sharply into focus in our current electronic world. E-waste is a term which has come to represent any and all types of electronic equipment that is near to ending, or is ending, it's useful life span.

These outdated electronics are quickly becoming any one

of a number of computers, telephones, televisions, VCR's, stereos, i-pods, fax machines, or some such other similar electronic product that now needs to be disposed of. In essence it has become garbage, refuse, waste, trash or whatever other term that you would prefer to refer to it as. Scientifically it is now officially referred to as "electronic waste" or as it is more commonly known "e-waste".

We are an era that over the past number of years has been, and is still, enticed by an ever evolving supply of electronic gizmo's and gadgets. Technology is advancing at a rapid pace and the newest technology today is quickly outmoded as newer and even more advanced improvements to current electronics advance to the forward front. These new and improved products hit the shelves, and our old outdated or worn out electronics become "e-waste", and as such, need to be disposed of."
http://www.squidoo.com/e-waste-recycle

E-waste includes old dishwashers, washing machines, refrigerators, toll booth scanners, cameras, sewing machines, anything with a computer chip, etc.

#3 Slide – Health Hazards

This slide is done for you. You need to memorize the slide. Read all the background information. You need to be able to face the Summit audience, not the screen, and talk about each bullet point. You need to be prepared to answer any questions.

In 2006, Europe banned the use of mercury, lead solder, cadmium and chromium in products sold in Europe. More countries are following suit, which will help reduce the problems associated with these four toxic metals. However, there are still billions of products that have toxic metals in them and need to be disposed of. Electronics are particularly likely to contain toxic metals that can harm human health and the health of animals and the environment.

- Mercury causes brain damage. The saying 'mad as a hatter' came about because 18th century hat makers handled felt soaked in a solution containing mercury. The hatters developed uncontrolled twitches because the mercury was damaging their nervous systems.
  Every day, mercury (including mercury from e-waste) is leaching into water. Eating fish is the main source of mercury in our bodies, and the amount of mercury in fish is rising. The good news is when new products are made with LED screens mercury is not used. The bad news is tons and tons of old products used mercury-laden cold-cathode fluorescent lamps (CCFL) in their screens, lights, etc. Many of these products are now being thrown out for newer products.
- Beryllium causes lung cancer. Battery contacts, electronic connectors in cell phones and portable electronics are made with copper beryllium alloys. Beryllium is also used in automobile airbags, electronic braking systems, weather forecasting satellites, chemical detection, fire suppression sprinkler systems, emergency rescue equipment,

solar panels, military defense and even golf clubs. Beryllium is useful in these and other products because it makes certain metals as strong as steel without the weight. When improperly handled during disposal or recycling, beryllium dust can be released, which is known to cause severe lung disease and lung cancer. Beryllium is not found naturally in the human body.

- Chromium damages DNA. Chromium is one of the rare minerals needed in the human body, but too much of it causes problems. Too much chromium causes babies to be born deformed or with mental disabilities. Chromium is shiny and colorful; it is the element that makes chrome. When burned, the metal is reduced to small particles that can be inhaled or carried great distances to settle in a removed environment. Chromium can also contaminate ground water and negatively affect nearby sources of freshwater and aquatic environments.
- Lead damages the nervous system, blood system, kidneys and reproductive system. In the United States, we have banned lead in paint or any other product that can come in contact with children. Lead exposure, even at low levels, is well known for its harmful effects on children. Lead exposure can result in lowered IQs and decreased ability to pay attention. Children exposed to low levels may appear hyperactive and irritable according to the American Academy of Child and Adolescent Psychiatry. Even so, the use of lead is still allowed in electronics.

  Lead solder is the "linchpin of electronics manufacturing," says Jack Geibig, acting director of the Center for Clean Products and Clean Technologies at the University of Tennessee. "Without it, it's difficult to achieve a proper electronic connection that is durable and reliable."
- Barium is a toxic, heavy metal. It is part of the natural environment and is silver-white in color. There are two types of barium compounds, water-soluble (can be dissolved in water) and water insoluble (cannot be dissolved in water). Water-soluble barium is used to make glass shinier, take moisture out of metals in capacitors and transducers and make rat poison and insecticides (chemicals made to kill bugs) fatal. Insoluble barium is used in medical tests for the digestive system because it allows doctors to see the digestive system in x-rays. Barium is also used in the cement of nuclear plants and x-ray rooms because it absorbs radiation. Barium cannot be digested in the human body.
- The name cobalt translates to 'goblin' or 'evil spirit'. Miners gave it this name because it was hard to mine and harmful to the miners' health. Cobalt can damage skin and a variety of tissues in the body. It is used in making rechargeable batteries for computers, cameras, game systems, etc.
- Arsenic is poisonous. Arsenic is another hazardous element contained in electronic products. "High-purity arsenic (99.9999%) is used by the electronics industry for gallium-arsenide semiconductors that are used for telecommunication, solar cells, and space research. Arsenic may be used for germanium-arsenide-selenide specialty optical materials. Circuit boards, relays, switches, and other electronic components..." (http://minerals.usgs.gov/minerals/pubs/commodity/arsenic/arsenmcs07.pdf) Small, continual amounts of arsenic poisoning are harmful to the skin, and a large dose is immediately deadly.

Advanced case of arsenic poisoning, China, photo courtesy of USGS.

#4 Slide – What Happens to E-Waste

Insert the YouTube video(s) of your choosing on this slide. Your standard learning target on this slide is: With all of the resources available to me, which one would I not want to be without? Why? Remember you have a time limit. You have no more than 10 minutes of video on this slide. If you know how use parts of a video, do so, if not, choose the best one(s) that fits your message.

- *60 Minutes – China (2011):* http://www.youtube.com/watch?v=SCGEvOmKo98&feature=related - You think gangs are about drugs? Think again.
- *E-waste movie – short version – who's dying for your iPad, the truth of e-waste:* http://www.youtube.com/watch?v=EnqvfNstr_4
- *GOOD Magazine: E-Waste:* http://www.youtube.com/watch?v=sl2j83LCHss - This is a short clip with fast reading involved
- *Electronic Waste in Ghana (2008):* http://www.youtube.com/watch?v=pr1zQrXM_7s
- *E-Waste: A Global Time Bomb (2009):* http://www.youtube.com/watch?v=9j2KPxanzeA&feature=related - This video has pieces of other videos. The parts with no talking could be a good place to tell what you have found.
- *Faces of China – Heavy Metal:* http://www.youtube.com/watch?feature=endscreen&NR=1&v=cfyKn5dRu1k - This video is long, but gives a good overview of e-waste and the culture in China.
- *Ghana: Digital Graveyard (2011):* http://www.youtube.com/watch?v=jKYMJiTMx2g&feature=relmfu - This is a good video, but it may download slowly. If you choose this one, you will need a prepared talk of about 1 minute and 30 seconds while it downloads.
- *Africa: Digital Graveyard (2011):* http://www.youtube.com/watch?v=iPoMkZcW0PY
- *Where does e-waste end up? (2008):* http://www.youtube.com/watch?NR=1&v=0JZey9GJQP0&feature=endscreen

#5 Slide – E-Waste Recycling Innovations

Most e-waste solutions are about looking toward the future and not trying to fix the past. You may use no more than 6 minutes of video to show the Summit audience some of the solutions. The videos below do a great job of summing up the problem, but keep in mind many were made to market their services. Choose wisely - you may play all or part of any of the videos. Two of the links below go to articles you should read.

- *Integrated Circuit Recovery Program (2010):* http://www.youtube.com/watch?v=zkKNHNvQBxA&feature=related
- *Recycling Electronic Waste (E-Waste): GARB's Green Solutions to our Worldwide Crisis (2011):* http://www.youtube.com/watch?v=kQGcTH1g_hE&feature=related
- *Computer Recycling and E-Waste Management Solutions By Liquid Technology (2011):* http://www.youtube.com/watch?v=kzMYEZmEPyE&jadid=15185586550&jk=recycling%20of%20e-waste&jkId=8a8ae4cd371a6fb401371c489e6e656a&jmt=1_b_&jp=&js=1&jsid=12565&jt=1
- *EU activates new e-waste recycling rules (news article from 2012):* http://www.upi.com/Business_News/Energy-Resources/2012/08/15/EU-activates-new-e-waste-recycling-rules/UPI-65871345026600/
- *The Environmental Protection Agency's (EPA) WasteWise Program:* http://www.epa.gov/epawaste/conserve/smm/wastewise/

#6 Slide – Committee Opinion

Summarize what your committee has learned. Express how your committee thinks about the e-waste problem.

#7 Slide - Solutions

Your solutions should address the problems of:

1) What should be done with the e-waste that has already been dumped

2) What should be done with e-waste being dumped now

3) What life changes can you recommend that everyone at the Summit can consider adopting to reduce and eliminate the amount of e-waste they create?