

Appendix 5: Exemplars of Three Student Group Virtual Posters

Aluminum

Aluminum can be found in the screen and battery of a smartphone.

3 Recommendations:

- Before placing aluminum in the recycling make sure it's clean by rinsing the object with water.
- Always throw aluminum products in the recycling instead of the garbage.
- Try to reduce your consumption of aluminum foil/cans so less mining is required in general.

Bibliography:

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Aluminum comes from the Bauxite Ore, the Bauxite Ore can be found in topsoil in tropical and subtropical regions throughout the world, such as Africa, Oceania, and South America. Internationally, China is the biggest producer of aluminum, meanwhile British Columbia and Quebec produce the most aluminum in Canada.

Aluminum is by definition non-renewable seeing as there isn't an endless resource of them. However, it can be recycled endlessly by being melted down, sort of making it a combination of being renewable and non-renewable material.

It's extremely important that we recycle aluminum cans, foil, etc. Not disposing of them properly can result in multiple repercussions, while recycling them is mainly rewarding. When metals like aluminum are thrown in the trash, they often end up in landfills. This contributes to the contamination of our soil and groundwater (drinking water). By recycling aluminum, a new source of metal is created other than virgin ore. Recycling plants melt the aluminum to give them a new life. Recycling plants actually use less energy, produce less gas emissions, and creates more jobs than retrieving metal from mines. When recycling aluminum products like electronics and pots/pans it's best to bring these sorts of things to a special facility which can properly dispose these.

Advantages:

1. Metals are great conductors of electricity. This makes the aluminum able to help power the phone.
2. Aluminum is one of the most used metals in a phone, which is one of the most found metals in Earth's crust. This makes it an easy material to obtain.
3. Metals are malleable, which lets manufacturers design the phone more freely.

Disadvantages:

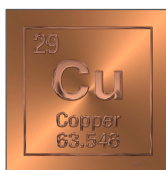
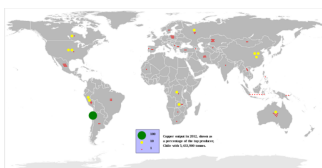
1. Aluminum can degrade by oxidation, corrosion and rust.
2. Mining metals is hard, especially with less technology. This makes the material expensive to build and buy the phone.
3. Metals conduct heat very well, so if the phone is left in a hot environment, it can overheat and damage its parts.

Raw Material

Copper is often found in the sedimentary layer of the Earth due to the high temperatures of volcanic magma creating hydrothermal veins permitting the escape of heat from the upper layers.

Copper is mainly mined in open pit mines. Some large exporters and miners are Utah, New Mexico and Chile.

Copper is non-renewable since it is finite, although it can be reused and is very recyclable.



Most micro-electrical components and wiring in mobile phones are made of copper as well as gold and silver.

Green Recommendations



- 1- Copper is mainly in our wiring, our plumbing and electronics. It is important for appliances. We could save energy and the products' longevity by turning off our appliances and unplugging them.
- 2- Copper is also used for computer and phone chips. Instead of buying a whole new device, we can replace the parts, in this case the chip itself.
- 3- Recycle your used copper products.



Environmental Impact

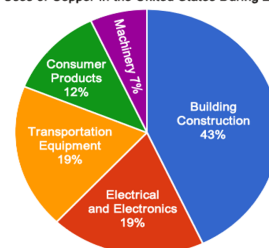
Mining copper promotes land degradation and causes an increase in deforestation. Since it doesn't break down in the environment, it tends to accumulate in soil and plants.

Advantages and Disadvantages

- Advantages**
- 1- Copper is lightweight.
 - 2- It is a durable metal.
 - 3- It is 100% recyclable
 - 4- Copper is safe will not burn or support combustion or decompose to toxic gases.

- Disadvantages**
- 1- Subject to corrosion (mostly oxidation)
 - 2- Prone to shocks and electrical surges
 - 3- High demand and therefore expensive.

Uses of Copper in the United States During 2017



Citations:

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Environmental Awareness: Lead

INTRO:

Batteries are something we use in our everyday things. Our tv remotes, our cars, our cellphones. Some of these batteries can be charged and reused which is better for our environment. Batteries contain raw materials such as lithium, nickel, cobalt, silicon, graphene, magnesium etc.



Batteries contains a raw material called lead. Lead is a heavy metal that is dense, soft and malleable.

Advantages	Disadvantages
Lead is very flexible and easy to work with when you use it for construction	Lead is expensive to buy .
Lead is atmospheric deterioration making it last longer than other materials.	Lead poisoning damages are aimed more to children since their brains and nervous systems are still developing, although they can be treated, damages can't be reversed.
Lead is very recyclable. Over 95% of the lead contained in batteries can be recycled for new batteries.	Lead can remain in the environment as dust indefinitely.

3. In order to dispose lead properly in an environmentally friendly way, it needs to be transported to a hazardous waste company that will properly dispose of lead. Once melted at high temperature, it can be melted and used again or recycled.

1. Lead is usually extracted from its ore by reduction of carbon. But a more environmentally sustainable way can be from removing tons of unusable rock around the ore zone then extracting it. It becomes more economical and energy efficient.

2. “Green” mining: it was put in place to address the large amounts of energy and water used by traditional mining methods. For example, Methane capturing techniques. Instead of releasing the methane through the mines ventilation system, it passes through a heated ceramic that oxidizes it.

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