For Teachers **Copper, never ending recycling**

Module 1

Objective: the copper webquest

Welcome

Title: Copper from e-waste
Description: This is a 3-lessons and 1-lab activity module to introduce students to the fundamental role of recycle metals
Grade Level: 16-19 years
Curriculum: chemistry
Keywords: Metals, Waste, Recycle

Introduction

You're most likely already familiar with the concept of recycling, and probably recycle paper, glass, clothing, shoes, aluminum drink cans and baked bean tins, but have you ever thought about recycling copper?

Recyclability is one property that helps to establish the 'green credentials' of a material, which is to say how environmentally friendly it is.

Demand for copper, along with other metals such as steel, aluminum and nickel, is growing as countries throughout the world continue to develop industrially with a consequent requirement for more raw materials. To help conserve the world's raw materials, there is a growing emphasis on recycling; however, for a more meaningful 'green' rating, a material's sustainability needs to be considered.

Task

A company that mines platinum has recently discovered a rich source of copper near ones of its mines. Unfortunately, their financial situation is critical so, needing new funds, it is looking for new lenders.
The company has asked to your savvy chemical team to probe the chemistry of copper and some of its compounds and prepare a presentation for the probable partners.

You should show them that its combination of useful properties makes it and its alloys suitable for a wide range of uses that enable and enhance our daily lives. By understanding the chemistry of copper and the great possibilities of use and recycling this metal it hopes to convince them. Prepare a ppt showing it.

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Process

Visit these sites and collect all the information you need about raw materials (copper in particular: e-waste, recycle, circular economy).

- http://criticalrawmaterials.org
- https://en.wikiversity.org/wiki/Critical_materials
- http://www.iai.it/en/pubblicazioni/europes-dependence-critical-raw-materials
- https://youtu.be/f2BhwrJJ-nc
- https://youtu.be/RmaGh4g1JtY
- https://copperalliance.eu/
- https://youtu.be/YhATvmfLKms
- https://copperalliance.org.uk/knowledge-base/education/education-resources/copper-reactivity-etching/

The following questions should guide your learning process:

- What is copper?
- What is copper used for?
- Which are the main properties of copper that make it indispensable to mankind?
- Which are the most important applications of copper?
- How does copper contribute to sustainable development?
- Why can we say that copper is 100% recyclable?

Do you feel prepared enough? If yes is your answer, now you can prepare your ppt or a poster useful to promote the copper recycling, or, if you want, you can do the second activity.