
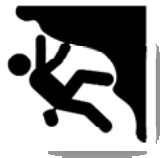











Summary

Copper: never ending recycling



	Target age	
	15-19 years	
	Level of difficulty	
	<input type="checkbox"/> Easy <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	
	Key words:	
	<ul style="list-style-type: none"> • Copper • e-waste • Recycle • redox reactions 	
	Abstract of the activity:	
	<p>This toolkit is designed to help you and your students begin learning more about copper's essentiality to the modern world. It is intended to understand copper attributes and its benefits, particularly regarding environment, circular economy, recycling and sustainable development.</p> <p>Through a webquest and a lab activity the students learn what e-waste is and how to recover copper from electrical circuits.</p>	
	Learning Goals	
	<ul style="list-style-type: none"> • To understand the importance of recycling metals • To discover what is e-waste and how it can be reused • To gain familiarity with basic laboratory procedures • To learn some chemistry of a typical transition element • To introduce the concept of percent yield 	

Summary

	<p>Specific Abilities - <i>At the end of the activity the student will be able to:</i></p> <ul style="list-style-type: none"> • To apply principles of redox reactions • To observe various types of chemical reactions and relate observations to these reactions. • To reinforce the idea of atoms being preserved in chemical reactions. • To practice quantitative techniques by attempting to recover the original copper and computing the percent recovered.
	<p>Cross-curricula Links</p> <ul style="list-style-type: none"> • Ecology/Environment • Chemistry • Computer Science
	<p>Prerequisites - <i>Knowledge and skills necessary for carrying out the activity</i></p> <ul style="list-style-type: none"> • Basic laboratory procedures • Stoichiometric principles • Principal types of reactions (decomposition, replacement, redox, synthesis)
	<p>Time requirement <i>plus eventually other boundary conditions</i></p> <p><input type="checkbox"/> 5h Instruments: <i>chemistry lab</i></p>
	<p>Learning and Teaching Support Materials - What you can find in the toolkit</p> <ol style="list-style-type: none"> 1. Lab Procedure/s- Modules 1-2 2. Students' Cards (1-2) 3. Tutorial Video 4. Questionnaire 5. ppt presentation for preparing a lesson (plus a short text) 6. Evaluation grids
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