

Low-Cost Experiments in STEM Education

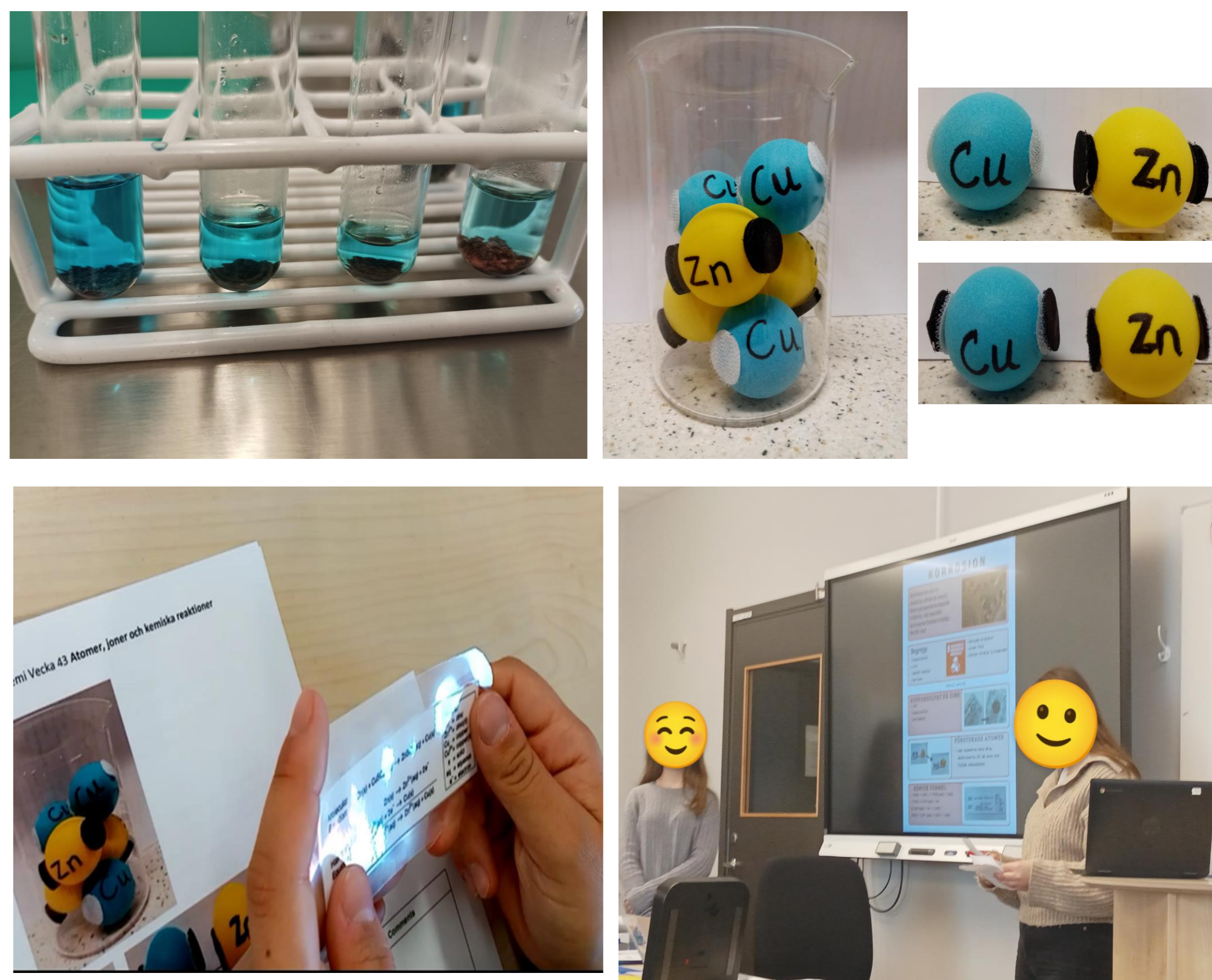


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Making the invisible visible

The chemistry triplet: Macro, submicro and symbolic

This project immerses students in understanding everyday chemical reactions. Inspired by the Scandinavian tradition of outdoor education "*uteskola*", students hunt for oxidation examples, documenting and discussing them. They then conduct a laboratory experiment using zinc and copper sulfate, where they observe and take notes on their observations.



Ultimately, in the symbolic research phase, students link formulas to physical changes, fostering a sustainable development perspective. The project emphasizes economic, societal, and safety implications, bridging theory and practice for a profound understanding of science in daily life.

In the second phase, ping-pong balls are used to explore submicroscopic principles and symbolically connect reactions. The tangible and combinatorial nature of this phase helps students connect their everyday observations to the theoretical bases of the process.



Chemical processes like corrosion, costing millions annually, provide practical examples to introduce students to environmental sustainability, potentially inspiring future STEM students.