

From Waste to Worth: Learning Science from Recycling

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Abstract

Recycling remains a critical environmental issue in the Philippines, where improper waste management and pollution significantly impact both urban and rural communities. The Philippines generates approximately 61,000 metric tons of solid waste daily, with plastic waste accounting for 24% of this total. Rapid urbanization and population growth in the Philippines have intensified waste management challenges. The Ecological Solid Waste Management Act of 2000 was enacted to address these issues, promoting waste segregation, recycling, and the establishment of material recovery facilities (MRFs). From these facilities, recycled materials are transformed into new products. This study identifies key challenges and opportunities for enhancing environmental literacy by analysing existing recycling policies and practices in the country. Integrating recycling education into the environmental science curriculum through problem-based learning (PBL) can foster student engagement, critical thinking, and real-world problem-solving skills. Successful stories like Rags2Riches, Ecobricks, or The Plastic Flamingo can guide students' biology, chemistry, and physics learning. This presentation explores some recycling-focused PBL units emphasizing student-led projects, community engagement, and interdisciplinary approaches to sustainability education and promotes environmental stewardship

Keywords: environmental science, MRFs, PBL, sustainability, waste management