

1. Proposed Solutions

A New Life For Plastics: Bioplastics And 3d Design

LICEO ENRICO FERMI HIGH SCHOOL TEAM (ITALY)

Topic: Biology, Technology, Engineering, Environmental Education, Chemistry, Statistics

Description: The world population is living, working, vacationing, along the coasts, and standing on the front row of the greatest, most unprecedented, plastic waste tide ever faced. Plastic is versatile, lightweight, flexible, moisture resistant, strong, and relatively inexpensive. Those are the attractive qualities that lead us, around the world, to such a voracious appetite and over-consumption of plastic goods. Our tremendous attraction to plastic, coupled with an undeniable behavioral propensity of increasingly over-consuming, discarding, littering and thus polluting, has become a combination of lethal nature. The future for the world is bioeconomy, recycle and use biodegradable material

Aims: Collaboration Communication Science & engineering civic competence entrepreneurship digital competence.

Outcome: More awareness of alternative solution for plastics

Learning designer link: <https://v.gd/RcWp4L>

Activities

Title	Procedure	Time
Introduction	The teacher introduces the topic of plastic pollution, explains that the main idea is to know plastics well, catalogue them, and recycle them. The class analyses the pictures and articles about the topic of plastic pollution and marine debris, recycling and bioeconomy	45 min
Real Labs	Investigate and discuss about different kinds of plastic and microplastics in the water.	60 min
Organic Solution Bioplastics	Students explore the possibilities of bioplastics and familiarize themselves with different terminologies	45 min
Making Bioplastics	Students make a plastic from potato starch and other foods	45 min



Product design and 3D Printing	The class makes a 3D design for a keychain.	45 min
Evaluation	Students presenting results and school exhibition for the whole community	20 min



Teachers explaining working plan and use of protocol before going to sampling site