

# STEM Education for Sustainable Development

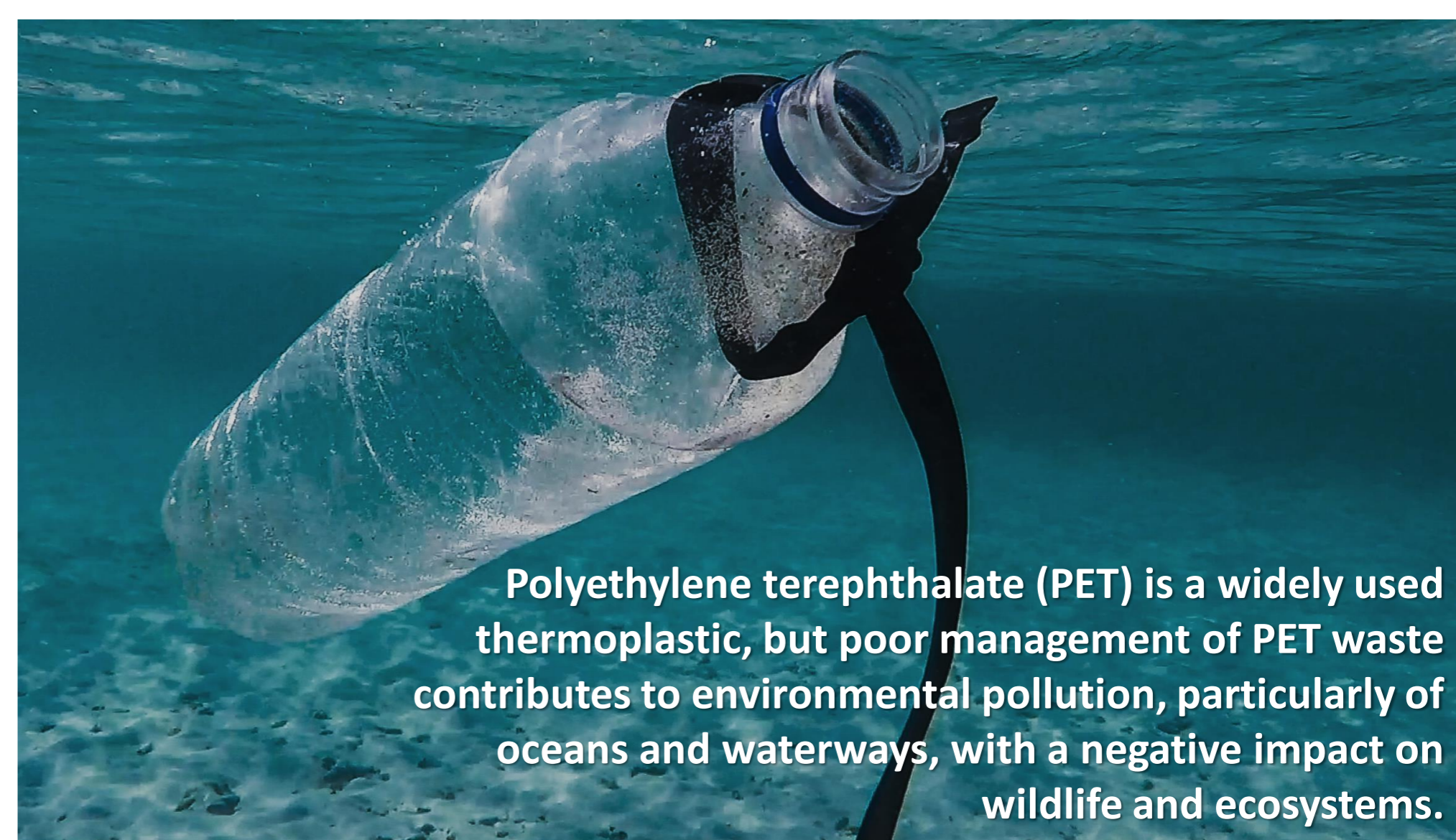


Nuno Lança | AE Pedro Eanes Lobato | Amora | Portugal

## Recicl@PET

Bring PET bottle recycling into the classroom

This project aims to develop students' knowledge and skills in digital fabrication technologies, in particular 3D printing, to create educational materials using plastic waste. Students are encouraged to campaign for the collection of PET packaging to raise awareness of the importance of plastic recycling.



Polyethylene terephthalate (PET) is a widely used thermoplastic, but poor management of PET waste contributes to environmental pollution, particularly of oceans and waterways, with a negative impact on wildlife and ecosystems.

Foto: Brian Yurasits / Unsplash



STEP 1  
Label removing and rounding of bottles



STEP 2  
Spiralizing bottles to 8-10mm strips



STEP 3  
Pultruding at 210°C with the Recreator3D

**PET pultrusion**, the process of spiralizing bottles into filament adequate for 3D printing, has been developed by the Maker community worldwide, notably by Joshua Taylor with his Recreator 3D project and Ondřej Šraitr's PETamentor.

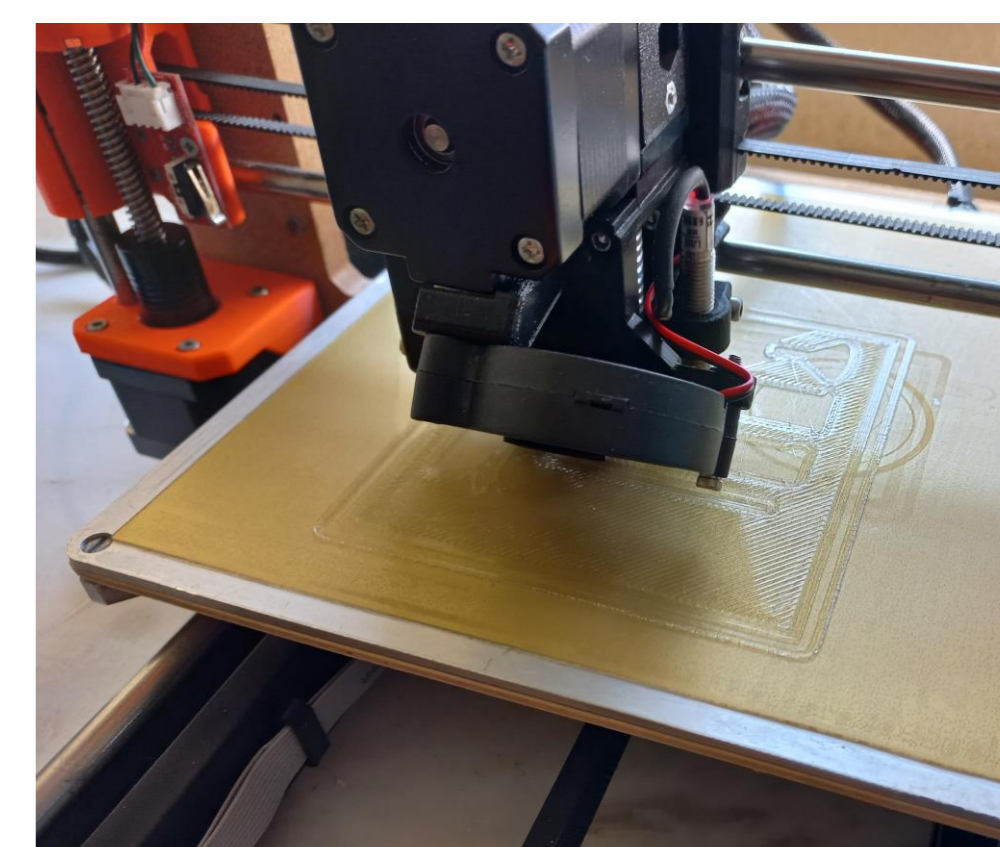
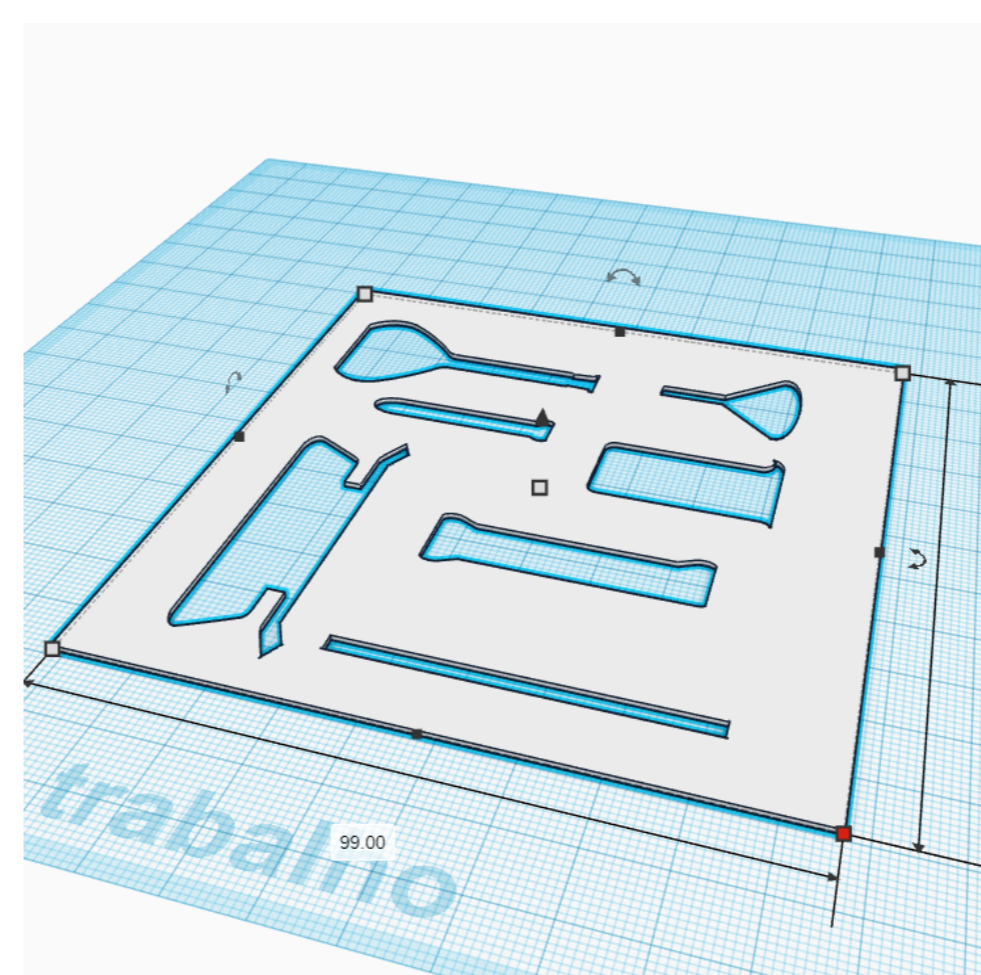


Recreator3D



PETamentor

By implementing the PET pultrusion process in the classroom, the students see the PET bottles they have brought become laboratory material used in STEM-related work, giving a whole new meaning and context to recycling for sustainable development.



Labware stencil designed in TinkerCAD by students to be 3D printed with rPET.

This project raises awareness of the benefits of PET recycling, such as decreasing the demand for virgin plastic, conserving natural resources and reducing waste.