MICROPLASTICS: A LOCAL ACTION TO AWARE ENVIRONMENTAL GLOBAL PROBLEMS

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ENVIRONMENTAL GLOBAL PROBLEM

Marine plastic litter is a global problem that affects coastal areas as a result of their low density, which make them easy to spread. Once plastics reach the ocean, they break into smaller particles mainly by photo-oxidation, thermal oxidation and mechanical degradation, among others. In the last years, concern about microplastic contamination (1 µm - 5 mm) has clearly increased at many levels, specially the scientific, which has reported new hotspots of plastic debris [1,2,3].

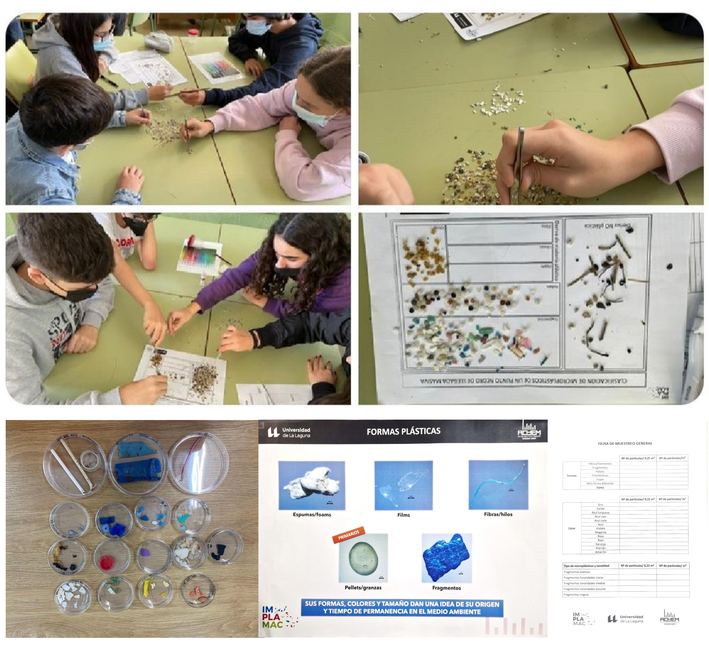
ACTIVE LEARNING AND SUSTAINABILITY IN EDUCATION

In primary and secondary education, environmental awareness is included as part of the current the curricula (Ley Orgánica 2/2006, de 3 de mayo, de Educación and Ley 6/2014 de 25 de julio, Canaria de Educación no Universitaria). However, in the curricular specifications, local environmental problems, which are of special concern to identify students awareness, are not frequently included in the textbooks.

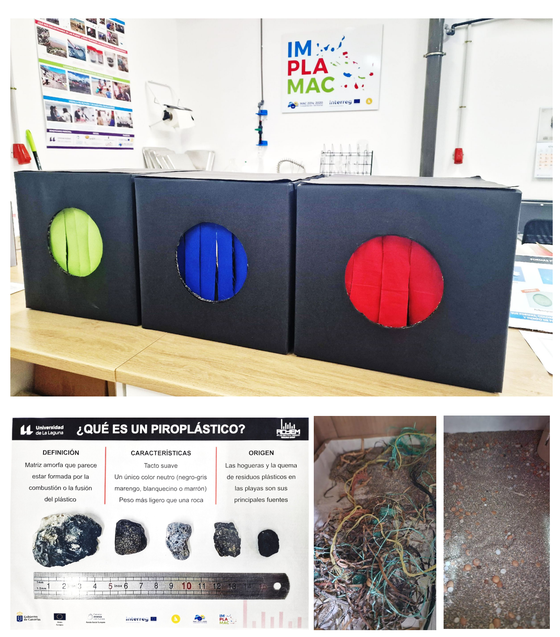
The general aim of this contribution is to provide specific activities to raise environmental awareness on problems related with the presence of microplastics in the marine environment to non-university students. In particular, we provide a template for counting and separating microplastics as well as to describe the steps to make sensory boxes that allow students to understand the difficulties that marine animals have in discerning between plastics and food.

MARINE DEBRIS COLLECTION
SCIENTIFIC METHOD
PLAYA GRANDE (BEACH)

MULTIDISCIPLINARY
RESEARCH AND DETERMINATION
AT THE SCHOOL



SENSORY BOXES EXPERIENCE
STUDENT EXPO
UNIVERSITY LAB



THEORY INTRO and BEACH SAMPLING

- THEORICAL CLASS IN SCHOOL (1h)
- BEACH SAMPLING (4-5h)
- GROUP OF 4, 50X50 CUADRANT, 0,25M^2
- 2 SIEVES (Meso > 5mm-Micro 5-1mm)

RESEARCH and DETERMINATION

- TEMPLATE FOR COUNTING AND SEPARATING MICROPLASTICS
- NON PLASTICS vs PLASTICS: FRAGMENTS, PELLETS, FOAM, FILMS
- Nº OF SAMPLES AND TYPE, COLOR
- MATHS ANALYSIS FOR 1M^2, %WHITES, % PLASTICS

RESULTS COMMUNICATION and UNIVERSITY EXPERIENCE

- UNIVERSITY EXPERIENCE
- COMMUNICATION OF RESULTS
- SENSORY BOXES
- FINAL REFLEXION

CONCLUSIONS

This project has had very positive academic and motivational results, both in the students and in the teachers who have guided the research and analysis work from the school. Students undertake a multidisciplinary educational journey (Physics, Chemistry, Mathematics, Social Sciences, Economics, ICT) that allows them to achieve a deep learning of the environmental problem. The scientific methodology used by the students is necessary to objectively analyze the problem and helps to develop critical thinking skills. Finally, students participating in the project increase their environmental awareness that contributes to the search for local and global solutions.

86 STUDENTS (14 YEARS OLD)
23 STUDENTS (16 YEARS OLD)

KEY LEARNINGS: ECO SOCIAL, ACTIVE, MULTI DISCIPL INARY, TEAM WORK, SCIENTIFIC METHOD, MOTIV ATION